

## 2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR615 - RED DESERT

HUNT AREAS: 60-61, 64

PREPARED BY: GREG HIATT

	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	13,356	11,081	11,729
Harvest:	556	1,198	530
Hunters:	598	1,174	585
Hunter Success:	93%	102%	91%
Active Licenses:	611	1,295	585
Active License Percent:	91%	93%	91%
Recreation Days:	1,745	3,272	1,575
Days Per Animal:	3.1	2.7	3.0
Males per 100 Females	59	67	
Juveniles per 100 Females	62	42	

Population Objective: 15,000

Management Strategy: Special

Percent population is above (+) or below (-) objective: -26.1%

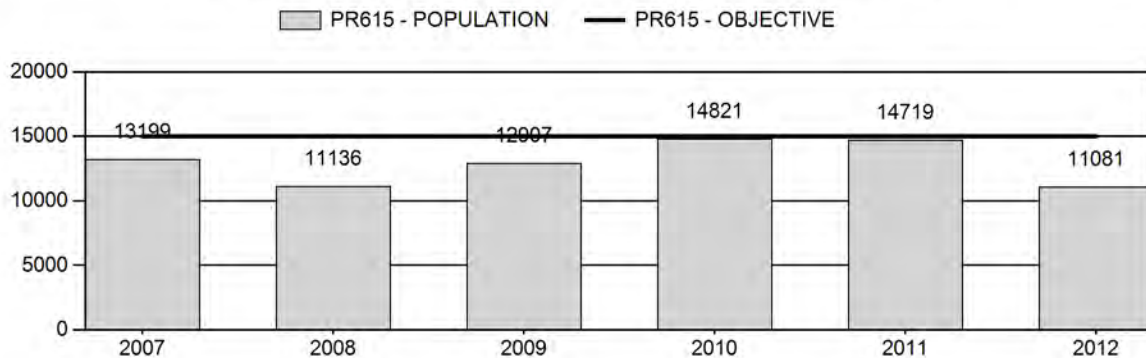
Number of years population has been + or - objective in recent trend: 2

Model Date: 03/10/2013

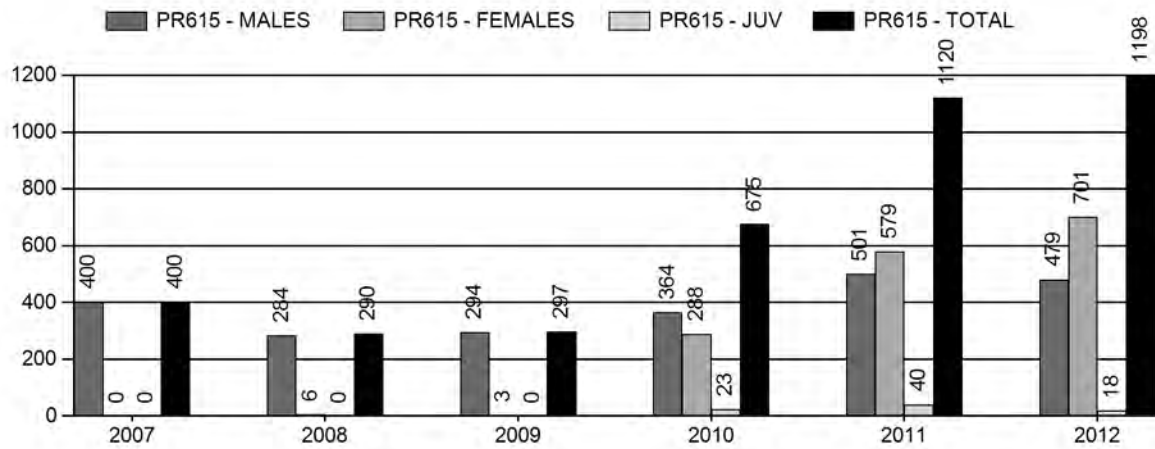
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	8.4%	2.5%
Males $\geq$ 1 year old:	8.2%	11.2%
Juveniles (< 1 year old):	1.4%	0.1%
Total:	6.64%	4.3%
Proposed change in post-season population:	-0.9%	+5.8%

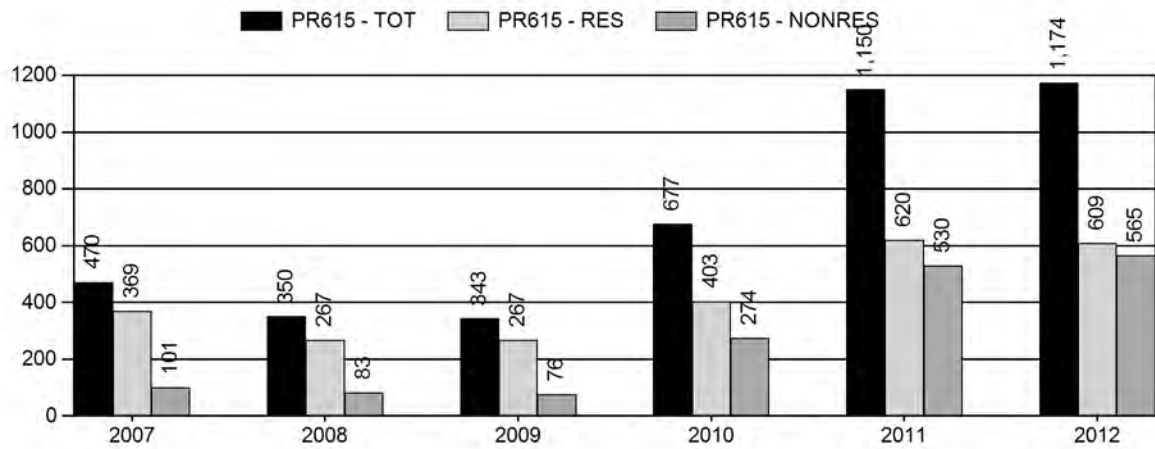
## Population Size - Postseason



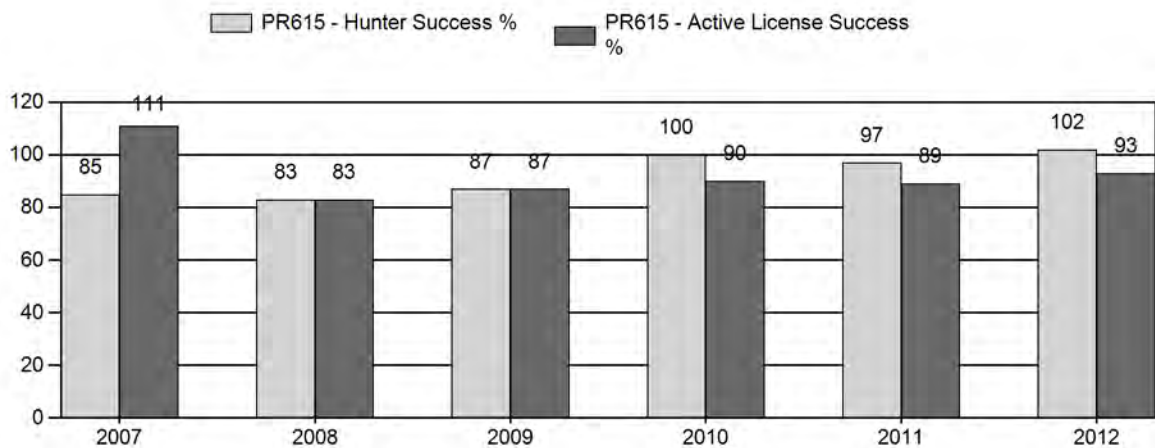
## Harvest



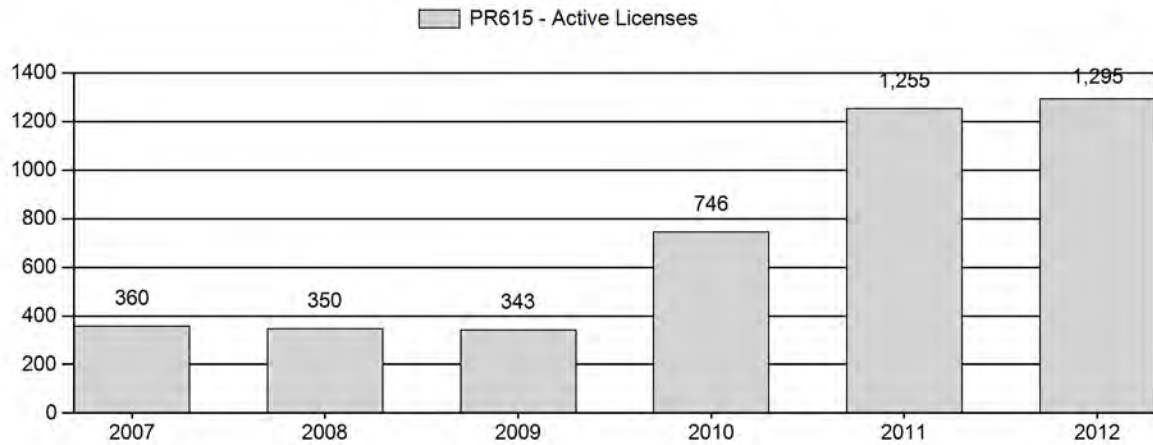
## Number of Hunters



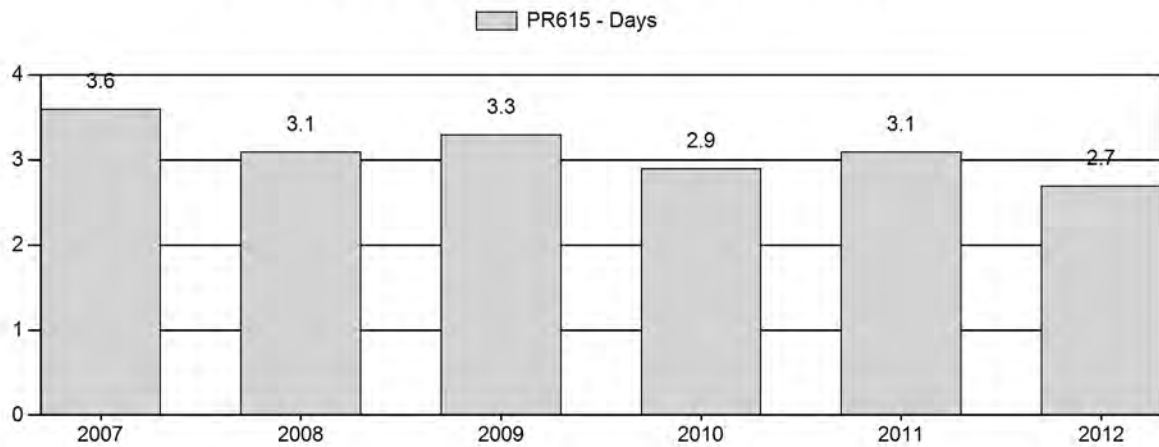
## Harvest Success



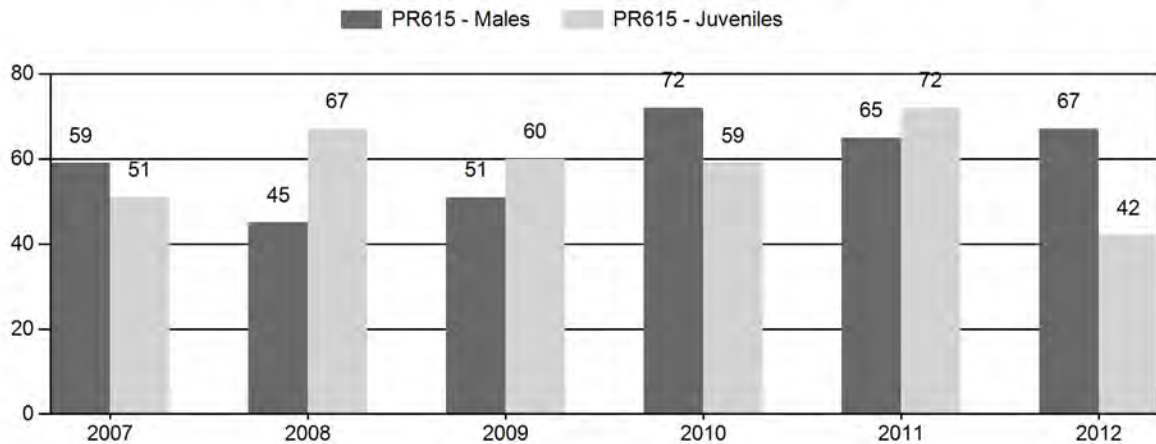
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



## 2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR615 - RED DESERT

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	13,639	154	617	771	28%	1,298	48%	657	24%	2,726	2,077	12	48	59	± 4	51	± 4	32
2008	11,455	136	428	564	21%	1,255	47%	842	32%	2,661	2,167	11	34	45	± 3	67	± 4	46
2009	13,234	268	749	1,017	24%	1,987	47%	1,190	28%	4,194	1,907	13	38	51	± 3	60	± 3	40
2010	15,563	361	951	1,312	31%	1,823	43%	1,077	26%	4,212	2,595	20	52	72	± 4	59	± 3	34
2011	15,951	263	736	999	27%	1,540	42%	1,115	31%	3,654	0	17	48	65	± 4	72	± 4	44
2012	12,390	177	888	1,065	32%	1,600	48%	667	20%	3,332	0	11	56	67	± 4	42	± 3	25

**2013 HUNTING SEASONS  
RED DESERT PRONGHORN HERD (PR615)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
60	1	Sep. 21	Oct. 14	75	Limited quota; any antelope
	6	Sep. 21	Oct. 14	25	Limited quota; doe or fawn
61	1	Sep. 7	Sep. 30	150	Limited quota; any antelope
	6	Sep. 7	Sep. 30	50	Limited quota; doe or fawn
64	1	Sep. 21	Oct. 14	200	Limited quota; any antelope
	6	Sep. 21	Oct. 14	100	Limited quota; doe or fawn
Archery					
60, 64		Aug. 15	Sep. 20		Refer to Section 3 of this Chapter
61		Aug. 15	Sep. 6		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
60	1	-50
	6	-100
61	1	-50
	6	-350
64	1	-25
	6	-250
<b>Total</b>	<b>1</b>	<b>-125</b>
	<b>6</b>	<b>-700</b>

**Management Evaluation**

**Current Management Objective: 15,000**

**Management Strategy: Special**

**2012 Postseason Population Estimate: ~11,100**

**2013 Proposed Postseason Population Estimate: ~11,750**

The Red Desert pronghorn herd is managed toward a post-hunt population of 15,000, an objective last publicly reviewed in 1994. Population size is estimated using a spreadsheet model developed in 2012 and updated in 2013. The herd is in special management, with harvest quotas designed to maintain pre-hunt buck:doe ratios above 60:100.

**Herd Unit Issues**

Historically, access in this herd unit has been good. Much of the unit is public land, and hunters have been able to acquire access to most private lands in the checkerboard. The seasonal

distribution map for the herd has not been updated for many years, and it is likely there are crucial winter habitats, particularly in Area 60, that have not yet been delineated.

Habitat issues in this herd unit include continued gas field development, coalbed natural gas development, opening of an *in situ* uranium mine with other mines proposed and possible development of shale oil. Many miles of sheep-tight fences exist in the herd unit, impeding pronghorn movements and migrations, and increasing losses during severe winters.

## **Weather**

Drought conditions were extreme in 2012, with minimal snowfall during the 2011-12 winter and almost no precipitation throughout the spring and summer. Drought was classified as moderate in April, severe in May and then extreme for all subsequent months through February 2013. As a consequence, fawn production was exceptionally low at 42:100, the lowest ever recorded for this herd. Body condition of most pronghorn harvested from these three areas in 2012 was poor, especially for lactating does. Given the poor condition of animals at the end of fall, mortality is expected to be above average during the 2012-13 winter, despite moderate winter conditions.

## **Habitat**

While no herbaceous habitat transects are established within this herd unit, herbaceous forage production is expected to have been minimal due to record drought. Only one shrub transect has been established near this herd unit, on the Chain Lakes WHMA, but was not read in 2012.

BP America transferred ownership of two solar water wells on Chain Lakes WHMA to WGFD. WWNRT allocated \$8,000 to WGFD for development of these two wells. Once developed, these wells will provide additional water sources for wildlife and help disperse domestic livestock that graze Chain Lakes WHMA.

## **Field Data**

Because of the extreme drought, fawn production in 2012 was only 42:100, the lowest ever recorded for this herd and at least 30 percent less than the previous 5-year average. Production was low in all three areas, ranging from an 11-year low of 31:100 in Area 60 to an all-time low of 48:100 in Area 64.

Buck:doe ratios met the special management criterion in all three areas in 2012, but are expected to decline with the 2013 harvest quotas due to the reduced number of bucks in the population, reduced doe harvest, and expected poor recruitment of yearlings from the 2012 fawn crop.

## **Harvest Data**

Hunter success in Areas 60 and 61 was similar to that seen in 2011, but improved for both license types in Area 64. Similarly, the average days of effort required to harvest an animal declined for hunters with both license types in Area 64. While these data suggest the number of pronghorn in the herd has increased, particularly in Area 64, herd data and the model estimates

do not support that conclusion. It appears more likely the extreme drought conditions caused a significant number of pronghorn to move out of Area 60 and Area 61 into the more mesic habitats in Area 64, as was seen with telemetered pronghorn in this herd during the 1980s.

## **Population**

The Time-Specific Juvenile & Constant Adult Survival (TSJ,CAS) spreadsheet model provided the best fit with observed buck:doe ratios for this herd, behaved predictably when 2012 classification and harvest data were added and is considered a “Fair” model of the herd. Annual adult survival was predicted at 88 percent, a reasonable level. Juvenile survival rates fluctuated within the allowed range and did not hover at maximum or minimum values for most years. The CJ,CA and SCJ,SCA models each had slightly lower AIC values, but both models predicted herd sizes well below line transect estimates and generated roughly stable buck:doe estimates that did not track the dips and rises of observed values. Due to the poor condition of animals going into this winter and projections of continued drought in 2013, fawn production in 2013 was projected to be similar to that seen in 2012. Similarly, the model was run with low juvenile survival in 2013.

## **Management Summary**

This herd was well below objective size following a record harvest and severe winter losses in 1992. Conservative harvests after that winter combined with improved fawn production and survival beginning in 2007 allowed the herd to reach and be maintained at objective size in 2010 and 2011.

Prior to the development of a reasonable spreadsheet model in mid-2012, population estimates suggested this herd was slightly above objective size and harvest, particularly for does and fawns, was increased in 2012 to its highest level since 1992. According to the spreadsheet model, the combination of heavy harvest and extremely poor fawn production in 2012 significantly reduced herd size, estimated at just over 11,000.

With the population estimated to be 26% below objective, harvests need to be reduced to allow the herd to recover. Quotas for Type 6 doe/fawn licenses are reduced in all three hunt areas, and to minimal numbers in Areas 60 and 61. Quotas for Type 1 licenses are also reduced in all three areas, by 11 percent in Area 64 to 25 percent in Area 61. With the projected harvest of roughly 390 bucks and 140 does and fawns, the model predicts the herd will increase by ~5 percent in 2013. If precipitation improves, improving both fawn production and survival, the increase in herd size will be greater, but would be unlikely allow the herd to reach objective in just one or two years.

INPUT	
Species:	Pronghorn
Biologist:	Greg Hiatt
Herd Unit & No.:	Red Desert
Model date:	03/10/13

☐ Clear form

MODELS SUMMARY			
	Fit	Relative AICc	Notes
CJ,CA	Constant Juvenile & Adult Survival	118	<div><input type="checkbox"/> CJ,CA Model</div> <div><input type="checkbox"/> SCJ,SCA Mod</div> <div><input checked="" type="checkbox"/> TSJ,CA Model</div>
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival	118	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival	49	

Population Estimates from Top Model									
Year	Predicted Prehunt Population (year /)		Total	Predicted Posthunt Population (year /)		Total	Predicted adult End-of-bio-year Pop (year /)		Objective
	Juveniles	Total Males	Females	Juveniles	Total Males	Females	Total Males	Females	
1993	3754	2901	6188	3689	2218	5702	3601	6757	10359
1994	3355	3529	6622	3286	2950	6113	3060	5912	8972
1995	2715	2999	5794	2692	2584	5530	3055	5722	8777
1996	3217	2994	5608	3217	2565	5563	2746	5488	8234
1997	2936	2691	5378	2936	2276	5367	2445	5273	7718
1998	3010	2396	5168	3010	1981	5153	2903	5804	8707
1999	3372	2845	5688	3372	2431	5682	3683	6656	10339
2000	3481	3610	6523	3465	3153	6322	3304	6184	9488
2001	3002	3238	6060	3002	2889	6060	3015	5908	8923
2002	2740	2955	5790	2727	2500	5606	3071	5896	8967
2003	3098	3010	5778	3082	2559	5547	2711	5425	8136
2004	3840	2657	5316	3798	2205	5089	3669	6289	9958
2005	3850	3596	6163	3829	3160	5957	3367	5909	9276
2006	3361	3300	5791	3355	2866	5724	3036	5650	8685
2007	2802	2975	5537	2802	2535	5537	2655	5406	8061
2008	3555	2601	5298	3555	2289	5292	3512	6249	9761
2009	3668	3442	6124	3668	3119	6121	4449	7186	11635
2010	4161	4360	7043	4135	3959	6726	4395	6892	11287
2011	4890	4307	6754	4846	3756	6117	4086	6039	10126
2012	2467	4004	5919	2448	3481	5153	3568	5576	9144
2013	3351	3497	5464	3346	3068	5316			
2014									
2015									
2016									
2017									
2018									
2019									
2020									
2021									
2022									
2023									
2024									
2025									



Survival and Initial Population Estimates

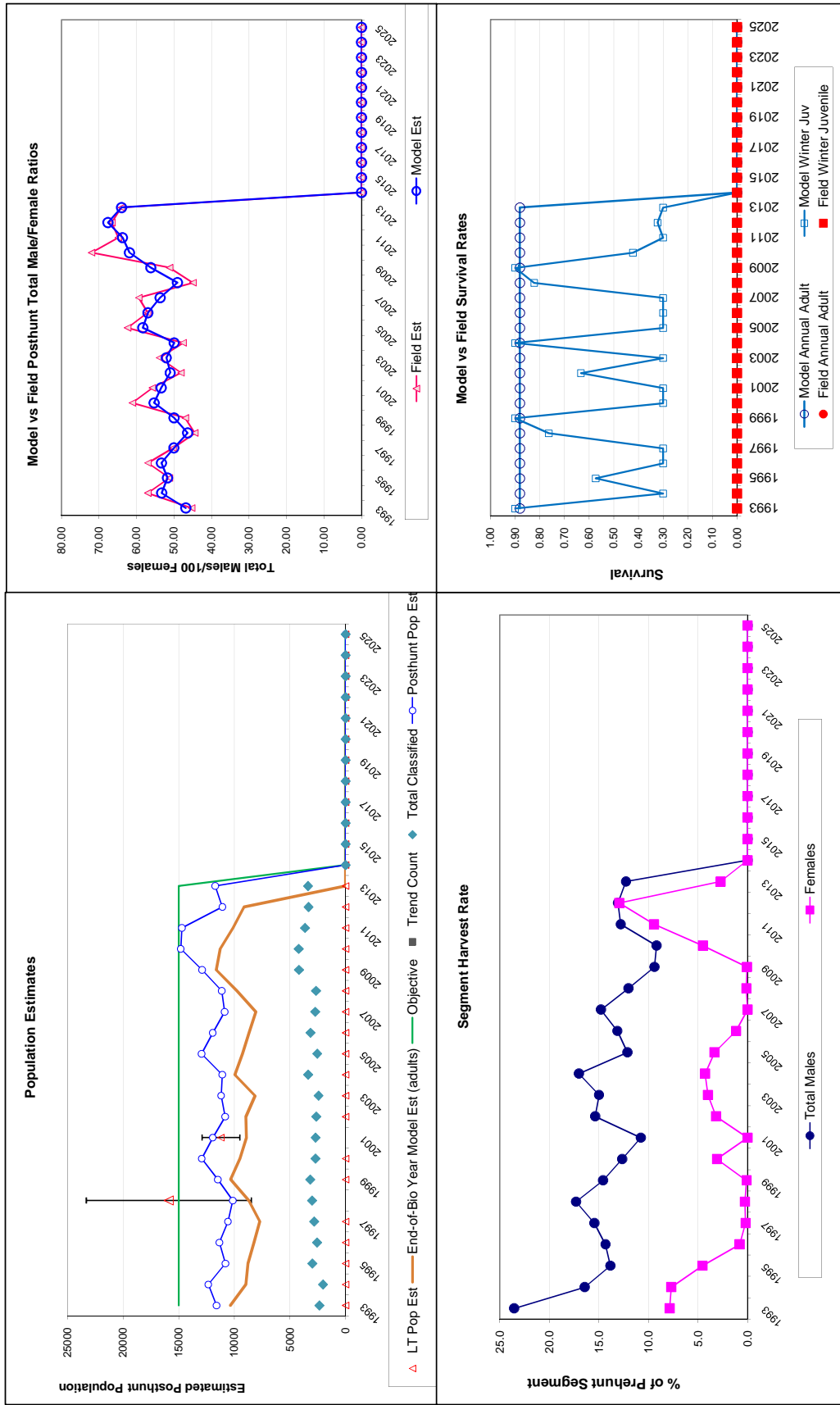
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.90		0.88	
1994	0.30		0.88	
1995	0.57		0.88	
1996	0.30		0.88	
1997	0.30		0.88	
1998	0.76		0.88	
1999	0.90		0.88	
2000	0.30		0.88	
2001	0.30		0.88	
2002	0.63		0.88	
2003	0.30		0.88	
2004	0.90		0.88	
2005	0.30		0.88	
2006	0.30		0.88	
2007	0.30		0.88	
2008	0.82		0.88	
2009	0.90		0.88	
2010	0.42		0.88	
2011	0.30		0.88	
2012	0.32		0.88	
2013	0.30		0.88	
2014				
2015				
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

Parameters:		Optim cells
Adult Survival =		0.881
Initial Total Male Pop/10,000 =		0.290
Initial Female Pop/10,000 =		0.619

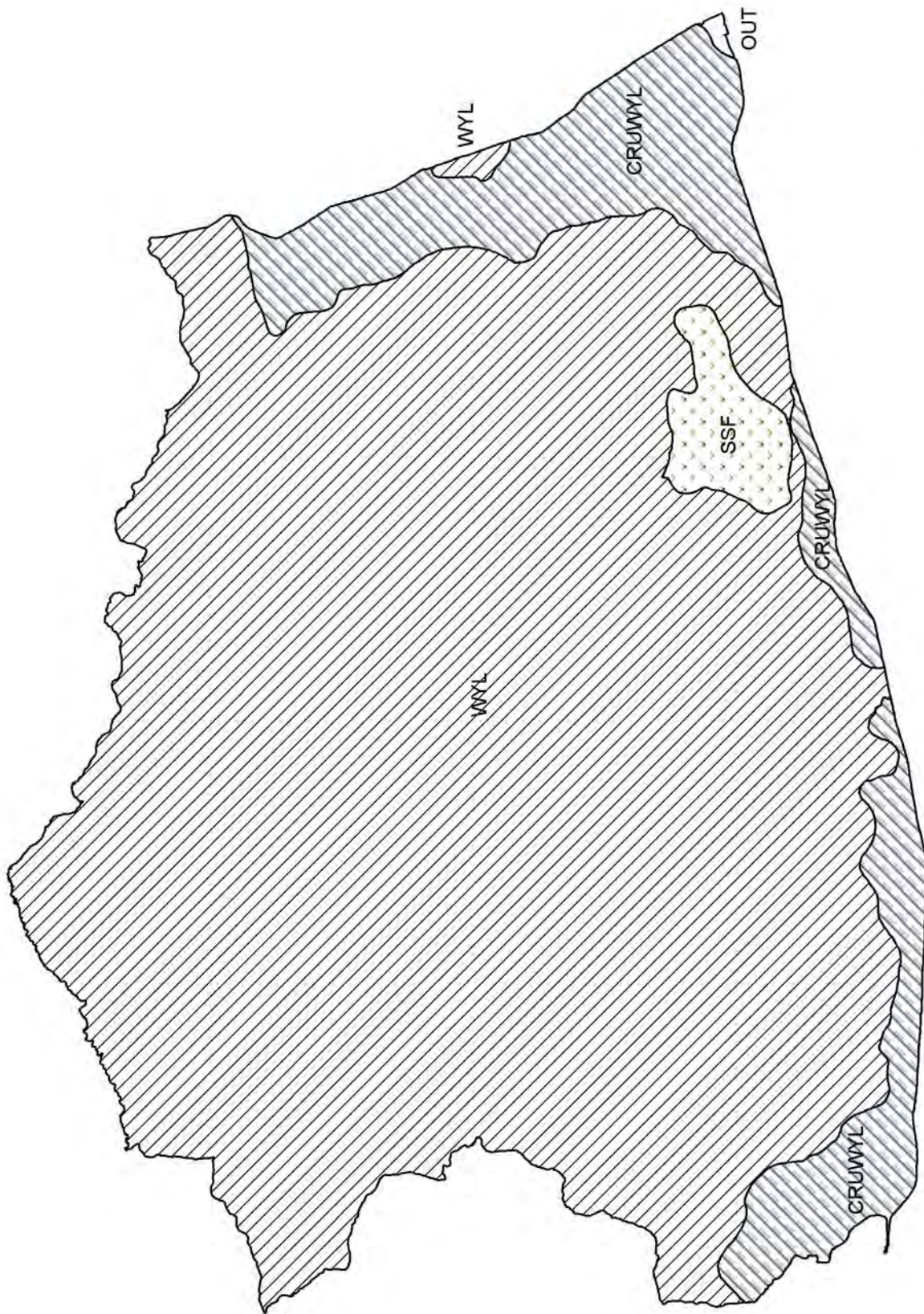
MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	

Year	Classification Counts					Harvest				
	Juvenile/Female Ratio		Total Male/Female Ratio			Juv		Total Harvest		Segment Harvest Rate (% of
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	
1993		60.67	2.93	46.88	45.30	2.40	621	442	59	23.5
1994		50.66	2.79	53.30	57.00	3.02	527	463	63	16.4
1995		46.86	2.13	51.75	51.22	2.26	377	240	21	13.8
1996		57.37	2.75	53.39	56.95	2.74	390	41	0	14.3
1997		54.59	2.47	50.05	50.25	2.34	378	10	0	15.4
1998		58.25	2.49	46.36	44.44	2.08	377	13	0	17.3
1999		59.29	2.47	50.02	46.99	2.11	377	5	0	14.6
2000		53.36	2.54	55.33	61.11	2.79	415	183	14	12.6
2001		49.54	2.37	53.43	55.78	2.57	317	0	0	10.8
2002		47.33	2.28	51.03	48.14	2.30	413	167	12	15.4
2003		53.62	2.65	52.09	53.88	2.66	410	210	15	15.0
2004		72.22	2.85	49.98	47.58	2.14	411	207	38	17.0
2005		62.47	2.99	58.35	62.38	2.99	396	187	19	12.1
2006		58.03	2.50	56.97	57.01	2.47	394	61	5	13.1
2007		50.62	2.42	53.73	59.40	2.70	400	0	0	14.8
2008		67.09	2.99	49.10	44.94	2.28	284	6	0	12.0
2009		59.89	2.20	56.21	51.18	1.97	294	3	0	9.4
2010		59.08	2.27	61.90	71.97	2.61	364	288	23	9.2
2011		72.40	2.85	63.76	64.87	2.64	501	579	40	12.8
2012		41.69	1.92	67.66	66.56	2.63			696	13.1
2013		61.33	2.57	64.00	64.00	2.65			135	12.3
2014										2.7
2015										
2016										
2017										
2018										
2019										
2020										
2021										
2022										
2023										
2024										
2025										

FIGURES



Comments:



PH615 - Red Desert  
HA 60, 61, 64  
Revised - 3/94

## 2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR630 - IRON SPRINGS

HUNT AREAS: 52, 56, 108

PREPARED BY: GREG HIATT

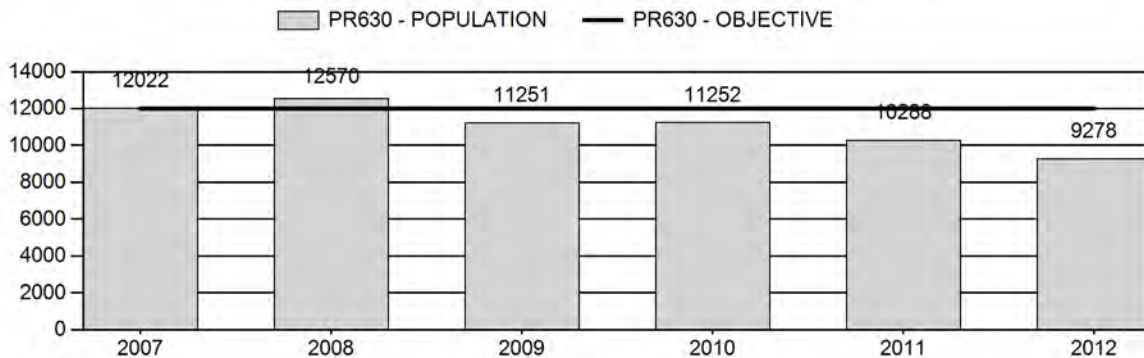
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	11,477	9,278	8,521
Harvest:	783	834	755
Hunters:	813	851	870
Hunter Success:	96%	98%	87 %
Active Licenses:	901	959	870
Active License Percent:	87%	87%	87 %
Recreation Days:	2,534	2,759	2,460
Days Per Animal:	3.2	3.3	3.3
Males per 100 Females	46	45	
Juveniles per 100 Females	54	48	

Population Objective: 12,000  
 Management Strategy: Recreational  
 Percent population is above (+) or below (-) objective: -22.7%  
 Number of years population has been + or - objective in recent trend: 4  
 Model Date: 03/10/2013

**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

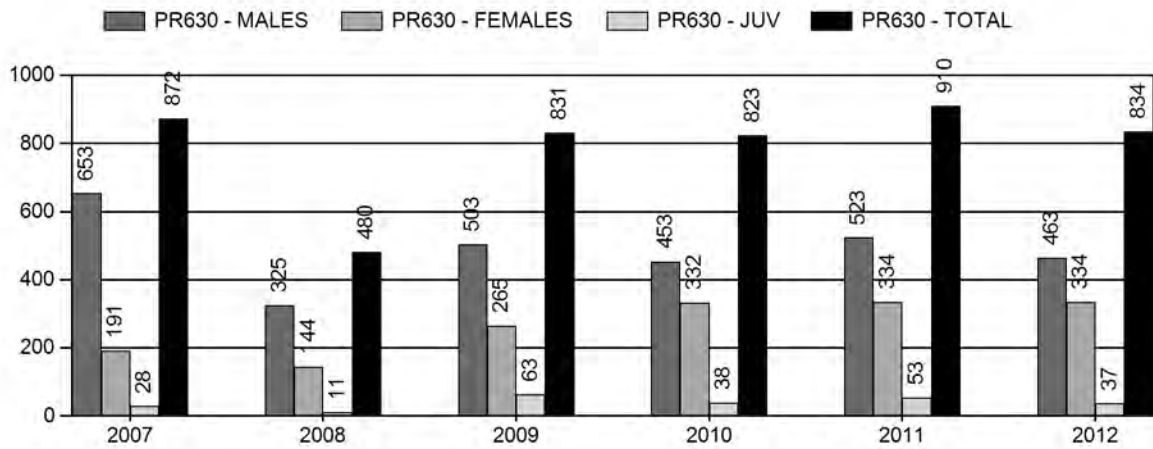
	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	6.0%	6.4%
Males $\geq$ 1 year old:	12.9%	19.6%
Juveniles (< 1 year old):	1.6%	1.2%
Total:	6.86%	8.1%
Proposed change in post-season population:	1.2%	-8.2%

## Population Size - Postseason

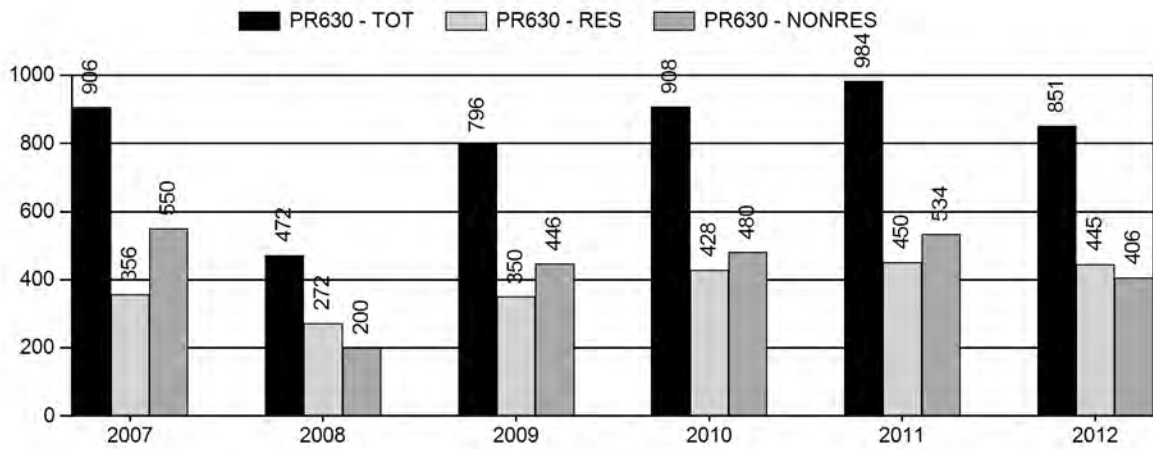




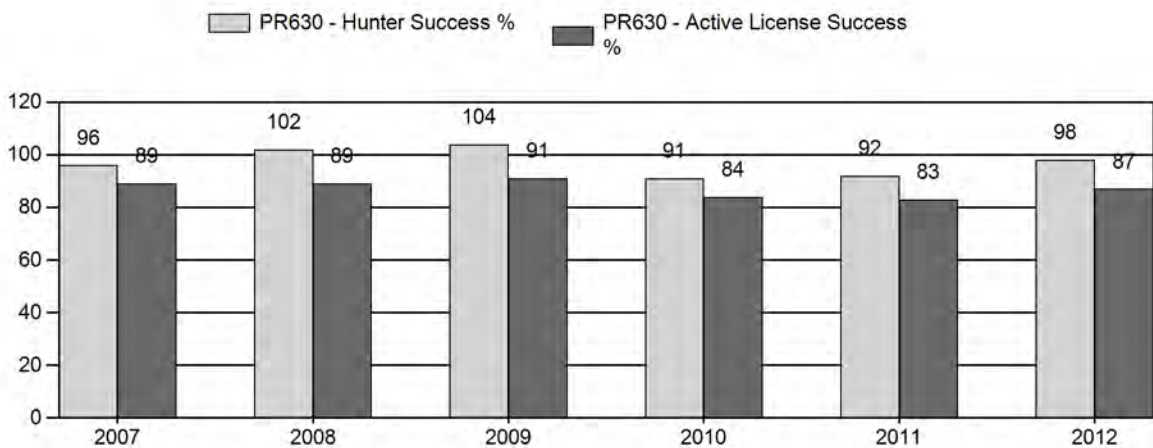
## Harvest



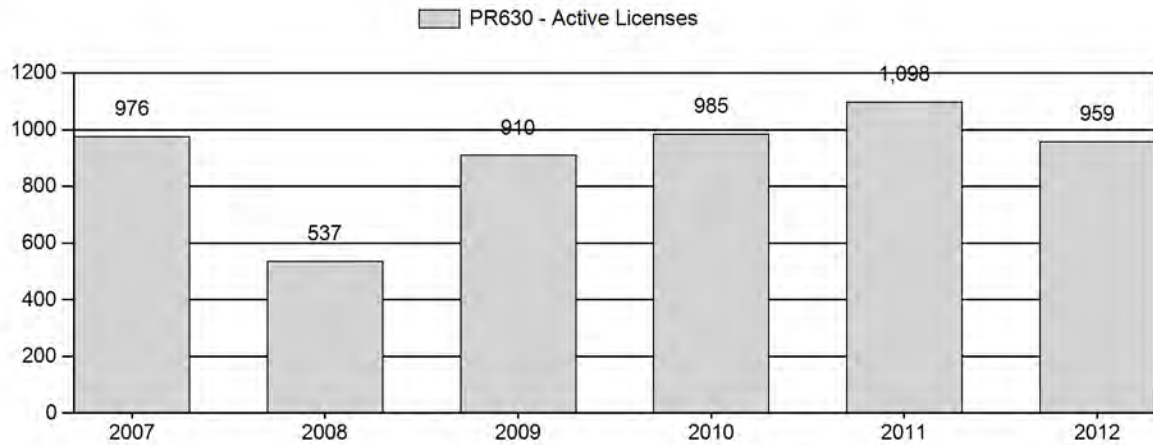
## Number of Hunters



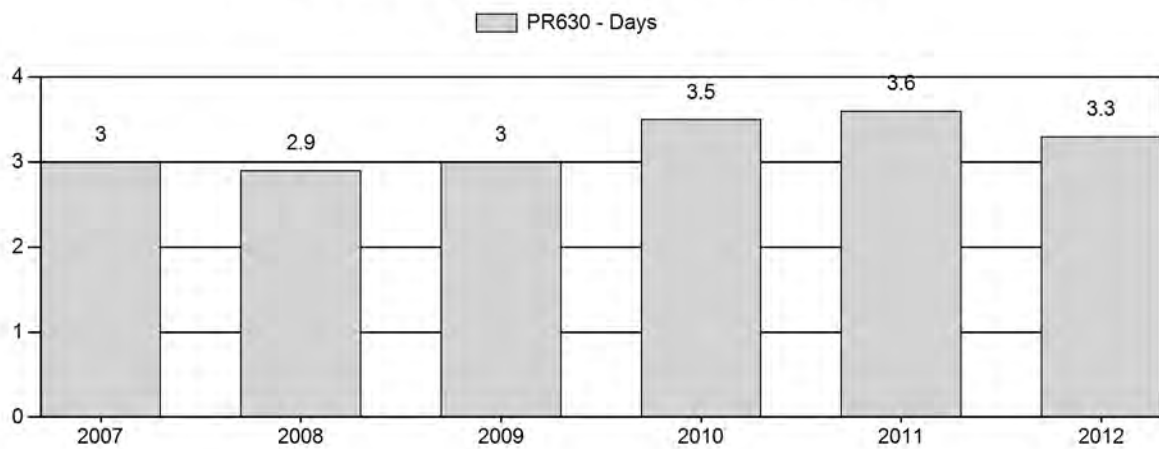
## Harvest Success



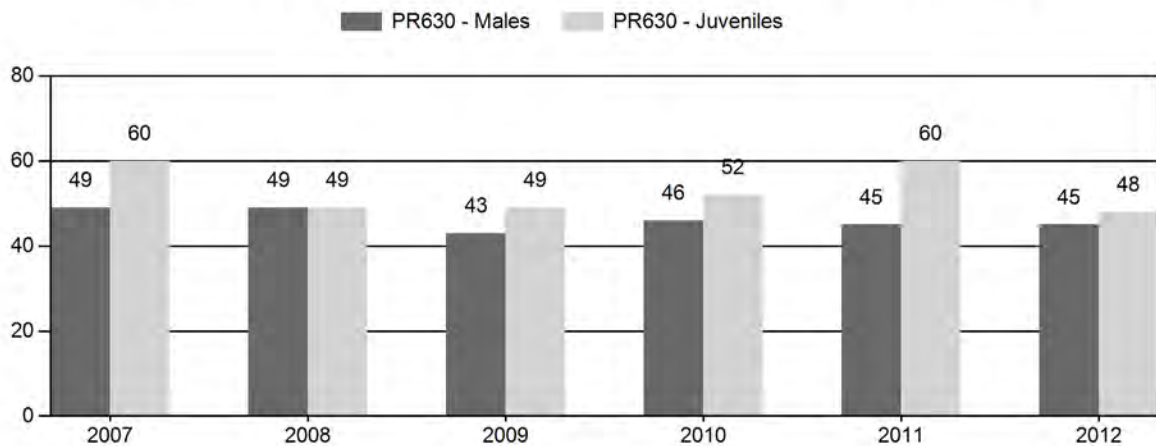
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



## 2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR630 - IRON SPRINGS

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	12,981	260	646	906	23%	1,865	48%	1,111	29%	3,882	1,838	14	35	49	± 3	60	± 3	40
2008	13,098	204	637	841	25%	1,734	51%	844	25%	3,419	1,373	12	37	49	± 3	49	± 3	33
2009	12,165	225	525	750	22%	1,764	52%	861	26%	3,375	1,343	13	30	43	± 3	49	± 3	34
2010	12,157	159	710	869	23%	1,874	50%	968	26%	3,711	1,477	8	38	46	± 3	52	± 3	35
2011	11,289	150	576	726	22%	1,627	49%	984	29%	3,337	0	9	35	45	± 3	60	± 3	42
2012	10,183	212	604	816	23%	1,801	52%	863	25%	3,480	0	12	34	45	± 3	48	± 3	33



**2013 HUNTING SEASONS  
IRON SPRINGS PRONGHORN HERD (PR630)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
52	1	Sep. 16	Oct. 31	150	Limited quota; any antelope
	2	Sep. 16	Nov. 14	200	Limited quota; any antelope valid in that portion of Area 52 south of North Spring Creek
	6	Sep. 16	Oct. 31	150	Limited quota; doe or fawn
	7	Sep. 16	Nov. 14	250	Limited quota; doe or fawn valid in that portion of Area 52 south of North Spring Creek
56	1	Sep. 20	Oct. 14	75	Limited quota; any antelope
108	1	Sep. 20	Oct. 14	100	Limited quota; any antelope
	6	Sep. 20	Oct. 14	75	Limited quota; doe or fawn
Archery					
52		Aug. 15	Sep. 15		Refer to Section 3 of this Chapter
56, 108		Aug. 15	Sep. 19		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
52	1	-50
	2	0
	6	-50
	7	0
56	1	0
108	1	0
	6	0
<b>Total</b>	<b>1&amp;2</b>	<b>-50</b>
	<b>6&amp;7</b>	<b>-50</b>

**Management Evaluation**

**Current Management Objective: 12,000**

**Management Strategy: Recreation**

**2012 Postseason Population Estimate: ~9,300**

**2013 Proposed Postseason Population Estimate: ~8,500**

The Iron Springs pronghorn herd is managed toward a post-hunt population of 12,000, an objective last publicly reviewed in 1994. Population size is estimated using a spreadsheet model

developed in 2012 and updated in 2013. The herd is in recreational management, with harvest quotas designed to maintain pre-hunt buck:doe ratios below 60:100.

### **Herd Unit Issues**

Construction of the proposed Chokecherry and Sierra Madre wind farms, consisting of roughly 1,000 turbines and the associated road network, could have significant impacts on important habitats in large portions of Areas 56 and 108, as well as the north portion of Area 52.

Construction of several large, trans-continental powerlines would cross important winter habitats at the north edge of Area 56.

Access remains an issue in this herd unit, particularly in the checkerboard in association with the proposed Chokecherry and Sierra Madre wind farms. The Walk-In program has opened access to large blocks of private land, primarily in Area 52, which has helped address concerns over large numbers of pronghorn residing on irrigated croplands during summer and fall.

The seasonal distribution map was last revised in March 1994 and no changes were made during the past 3 years. Observations made during winters since 1994 indicate consideration should be given to delineating crucial winter ranges south of Saratoga, southeast of Chokecherry Knob and near Fort Steele. The southern boundary between Area 108 and Area 53 of the Baggs herd was moved further south onto more easily recognized county roads in 2011 and the herd unit boundary should be expanded to align with the new hunt area boundary. Fences continue to pose barriers to pronghorn movements throughout much of the herd unit, increasing mortality during tough winters. Sheep-tight fences may also contribute to low fawn survival in pastures with limited water sources during dry summers.

Small acreages of crucial winter range have been lost to subdivision of deeded lands, primarily in the southern portion of the herd, and along Interstate Highway 80 in Area 56. Increased subdivision of these habitats, especially if these tracts are fenced, could seriously degrade the quality and utility of some winter ranges and migration routes. Development, partitioning, and fencing of these lands could have more deleterious effects on pronghorn migrations and habitat than some energy developments. Segregating land ownership among dozens of owners also deters recreational use of those divided lands and inter-mixed public lands.

### **Weather**

Drought conditions were extreme across the herd unit in 2012, with minimal snowfall during the 2011-12 winter and almost no precipitation during the spring and summer. Drought was classified as moderate in April, severe in May and then extreme for all subsequent months through February 2013. Three late winter blizzards in April 2013 probably increased mortality from this herd.

### **Habitat**

This herd unit overlaps most of the western half of the Platte Valley Mule Deer herd, and habitats for pronghorn suffer the same low productivity due to overuse, decadent shrubs and

drought. Treatments designed to improve habitat for mule deer through the Platte Valley Habitat Partnership are likely to improve habitats for pronghorn as well. Recent tebuthiuron treatments on top of Miller Hill in Area 108 and prescribed burns in Area 52 should improve summer ranges for pronghorn, at least in the short term.

Oil and gas drilling activity has tapered off in the herd unit, as most drilling rigs are active in more productive fields elsewhere in the country, but a successful shale oil well a few miles east of the herd unit may lead to increased interest here. Proposed strip mining of coal in Kindt Basin in Area 56 could damage winter habitats, but is unlikely to occur in the near future because of more competitive coal reserves elsewhere in the state and conflict with the Chokecherry wind farm. Increased interest in developing coalbed methane resources in southern Wyoming may lead to proposals to develop well fields to extract the methane from these coal seams.

### **Field Data**

As a consequence of extreme drought, fawn production dropped to 48:100, the lowest recorded in 15 years. Almost all the decline occurred in Area 52, with fawn production in Areas 56 and 108 remaining near low levels already seen in recent years.

Classification sample size declined again in Area 56 for the third year, and was the smallest sample in over 20 years. The buck:doe ratio for that area exceeded the 60:100 criterion for the third year, a consequence of both the small samples and the lack of hunting access to over 80 percent of Area 56 because of the impending Chokecherry wind farm. If access continues to be denied after the wind project is constructed, buck:doe ratios will be expected to continue to rise in that area. The buck:doe ratio improved in Area 108, but at 39:100 was still well below what would be desired in an area with significant blocks of public land. The buck:doe ratio for Area 52 was not much better, at 46:100, and was unchanged from the 2012 ratio. The supply of adult bucks declined in Area 52, from 36:100 in 2011 to 32:100 in 2012, a result of poor yearling recruitment the previous year.

### **Harvest Data**

Hunter success improved in 2012, for almost all license types in each of the three areas. Success was lowest in Area 52. Similarly, the average number of days of effort required to harvest an animal declined for most license types, but was highest in Area 52.

### **Population**

This herd was more than 10 percent below objective size following severe losses during the 1992-93 winter and remained below objective size for the rest of that decade due to poor fawn production. Fawn production began to improve in 1999, particularly in Area 52, allowing the herd to quickly reach objective size and then exceed it by ~35 percent by 2002. Most of the population growth was associated with irrigated croplands in the southern portion of Area 52. Harvests were increased, especially with the addition of Type 2 and 7 licenses limited to the southern portion of Area 52.

Losses in the northern portion of the herd unit were high again during the 2007-08 winter and pronghorn densities in that portion of the herd have not recovered due to repeated poor fawn production in low desert habitats in Areas 56 and 108. Losses were not exceptional in Area 52 during that winter and fawn production remained adequate in that portion of the herd until 2012.

Prior to the development of a reasonable spreadsheet model in mid-2012, population estimates suggested this herd was roughly at objective size up until 2011. According to the spreadsheet model and a line transect survey flown in spring of 2012, the herd was actually 15 percent below objective as early as 2010. The combination of continued doe/fawn harvest and extremely poor fawn production in 2012 significantly reduced herd size this year, estimated at just over 9,300.

The Time-Specific Juvenile & Constant Adult Survival (TSJ/CAS) spreadsheet model provided the best fit with observed buck:doe ratios for this herd, behaved predictably when 2012 classification and harvest data were added and is considered a “Fair” model of the herd. Annual adult survival was predicted at 88 percent, a reasonable level. Juvenile survival rates fluctuated within the allowed range and did not hover at maximum or minimum values for most years. The CJ,CA and SCJ,SCA models each had slightly lower AIC values, but both models predicted herd sizes well below the confidence interval of the most recent line transect estimate and generated roughly stable buck:doe estimates that did not track major dips and rises of observed values. The SCJ,SCA model also overestimated observed buck:doe ratios for each of the past three years. Due to the poor condition of animals going into this winter and projections of continued drought in 2013, fawn production in 2013 was projected to be similar to that seen in 2012. Similarly, the model was run using low juvenile survival in 2013.

## **Management Evaluation**

With the population estimated to be 22% below objective, harvests should be reduced to allow the herd to recover. Quotas were reduced for the Type 1 and Type 6 licenses in Area 52, most of which are presumably filled on public lands in the northern portion of that area. However, the increased harvest from Type 2 and Type 7 licenses in Area 52 has successfully alleviated most landowner complaints about high pronghorn numbers on irrigated fields in the southern portion of that area. No increase in pronghorn numbers is desired in that portion of the herd unit and quotas for those license types are unchanged from 2012 levels. License quotas for Area 56 have been low in recent years since hunters are denied access to more than 80 percent of the hunt area by landowners and proponents of the Chokecherry wind project. There would be little benefit to the pronghorn population from a further reduction in that area and the quota is unchanged from 2012. License quotas in Area 108 have also been low since 2008, but include doe/fawn licenses intended primarily to address landowner concerns over high pronghorn numbers on one ranch that allows public hunting. License quotas Area 108 are also the same as available in 2012.

The expected harvest of roughly 420 bucks and 335 does and fawns from the 2013 season quotas should continue to reduce herd size further below objective, projected to be ~8,500 at post-hunt 2013. This assumes reduced survival through the 2012-13 winter and fawn production similar to the low level seen in 2012. If either winter survival or fawn production exceeds expectations in 2013, herd reduction would be lessened. When weather and range conditions allow for growth of this population towards objective size, the most desired areas for that growth would be in the

northern portion of Area 52 and southern portion of Area 108 where access is available and numbers of pronghorn on private lands has been less of an issue.

Opening dates for all areas and types are consistent with the application booklets. Opening dates for licenses in Area 52 are the same as in 2012 and coincide with seasons in neighboring Areas 50 and 51. As in 2012, the Type 2 and 7 licenses in the southern portion of this area are valid for an additional two weeks into November. The season in area 52 entirely overlaps local deer and elk general license seasons. Opening dates for areas 56 and 108 are the same as in the previous 14 years and coincide with neighboring areas 53 and 55 of the Baggs herd. Closing dates for areas 56 and 108 overlap local deer seasons and the first four days of the season in elk area 108. Archery seasons use standardized opening dates and close the day before the regular season opens for each area.

If significant portions of the herd unit remain closed to hunting, buck:doe ratios for the herd may have to exceed 60:100 in order to maintain reasonable levels of buck quality on the portions where harvest occurs.

INPUT

Species:  
Biologist:  
Herd Unit & No.:  
Model date:

Pronghorn  
Greg Hiatt  
630 = Iron Springs  
03/10/13

MODELS SUMMARY

Check best model to create report

☐ Clear form

☐ C/JCA Model  
☐ SCJ/SCA Mod  
☒ TSJ/CA Model

Notes

Population Estimates from Top Model														
Year	Predicted Prehunt Population (year /)			Total	Predicted Posthunt Population (year /)			Total	Predicted adult End-of-bio-year Pop (year /)		LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est		
1993	2816	3035	6000	11851	2738	2251	5535	10523	3181	6172	9353			12000
1994	3523	3117	6049	12690	3421	2427	5594	11441	2852	5727	8579			12000
1995	2297	2795	5613	10705	2219	2132	5210	9562	2401	5199	7600			12000
1996	2912	2353	5095	10360	2858	1817	4910	9586	2688	5491	8160			12000
1997	2267	2615	5382	10263	2234	2151	5286	9670	2207	5070	7277			12000
1998	2847	2163	4969	9978	2822	1705	4907	9435	2674	5600	8274			12000
1999	3576	2620	5488	11685	3563	2173	5402	11138	3333	6280	9613			12000
2000	3728	3267	6154	13149	3718	2820	6070	12609	3756	6722	10477			12000
2001	4062	3680	6587	14330	4046	3246	6511	13803	4722	7701	12423			12000
2002	4626	4628	7547	16801	4610	4168	7421	16198	4391	7355	11746			12000
2003	3947	4303	7208	15458	3924	3609	7014	14547	3752	6874	10627			12000
2004	4385	3677	6737	14799	4364	2963	6566	13894	3238	6543	9780			12000
2005	4184	3173	6412	13769	4166	2423	6216	12804	3999	7476	11475			12000
2006	4183	3919	7327	15428	4150	3092	7109	14351	3481	7165	10646			12000
2007	4183	3411	7022	14616	4152	2693	6812	13657	3124	6888	10012			12000
2008	3286	3062	6751	13098	3274	2704	6592	12570	2884	6404	9288			12000
2009	3063	2826	6276	12165	2994	2273	5984	11251	2900	6268	9168			12000
2010	3173	2842	6142	12157	3131	2344	5777	11252	2511	5613	8124			12000
2011	3327	2460	5501	11289	3269	1885	5134	10288	2471	5354	7825	8736	884	12000
2012	2514	2422	5247	10183	2472	1917	4888	9278	2183	4852	7036			12000
2013	2457	2140	4755	9352	2424	1678	4420	8521						12000
2014														
2015														
2016														
2017														
2018														
2019														
2020														
2021														
2022														
2023														
2024														
2025														

Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.90		0.88	
1994	0.45		0.88	
1995	0.52		0.88	
1996	0.76		0.88	
1997	0.30		0.88	
1998	0.83		0.88	
1999	0.79		0.88	
2000	0.67		0.88	
2001	0.90		0.88	
2002	0.30		0.88	
2003	0.30		0.88	
2004	0.30		0.88	
2005	0.90		0.88	
2006	0.38		0.88	
2007	0.38		0.88	
2008	0.30		0.88	
2009	0.61		0.88	
2010	0.30		0.88	
2011	0.46		0.88	
2012	0.37		0.88	
2013	0.30		0.88	
2014				
2015				
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

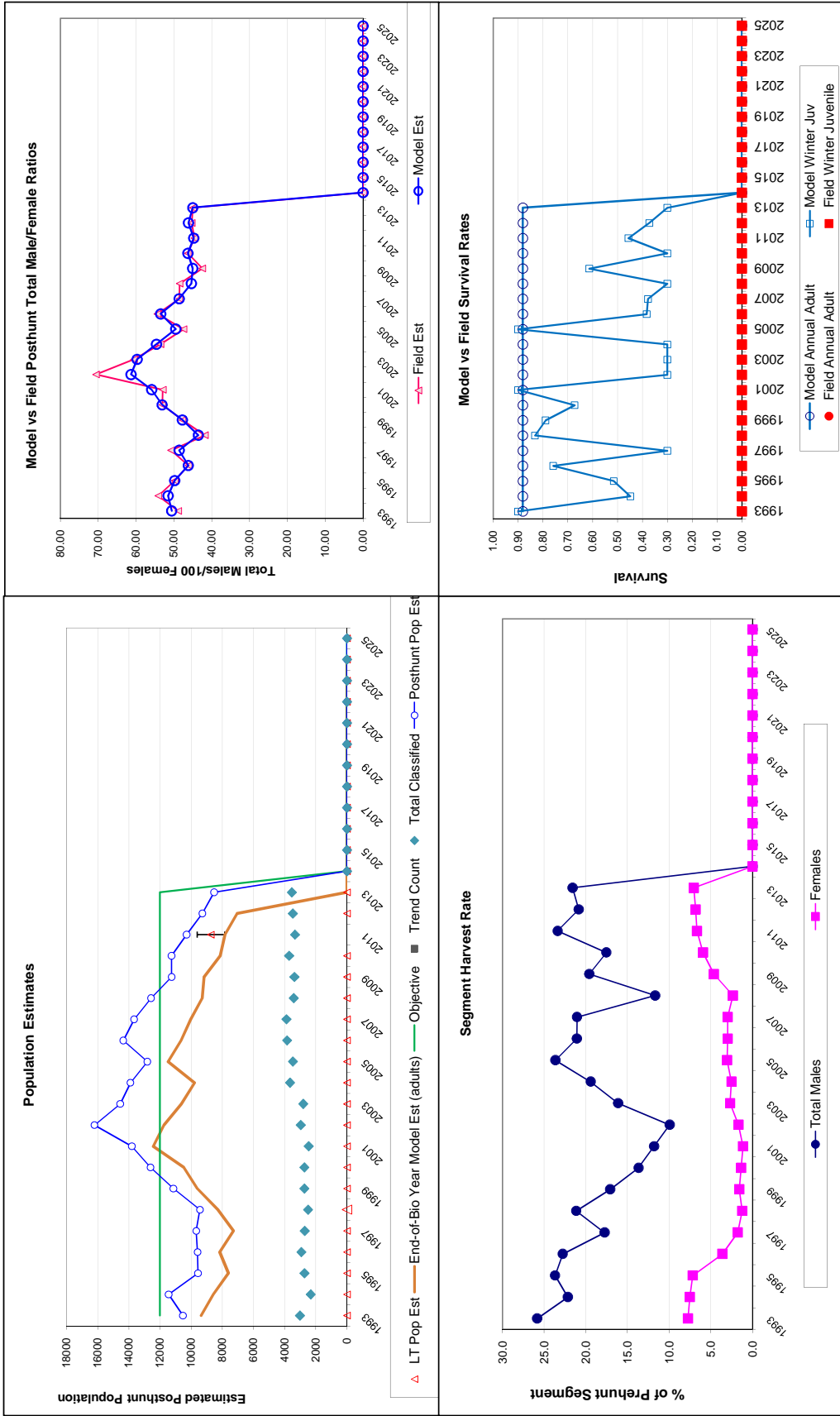
Parameters:		Optim cells
Adult Survival =		0.881
Initial Total Male Pop/10,000 =		0.303
Initial Female Pop/10,000 =		0.600

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	
	98%

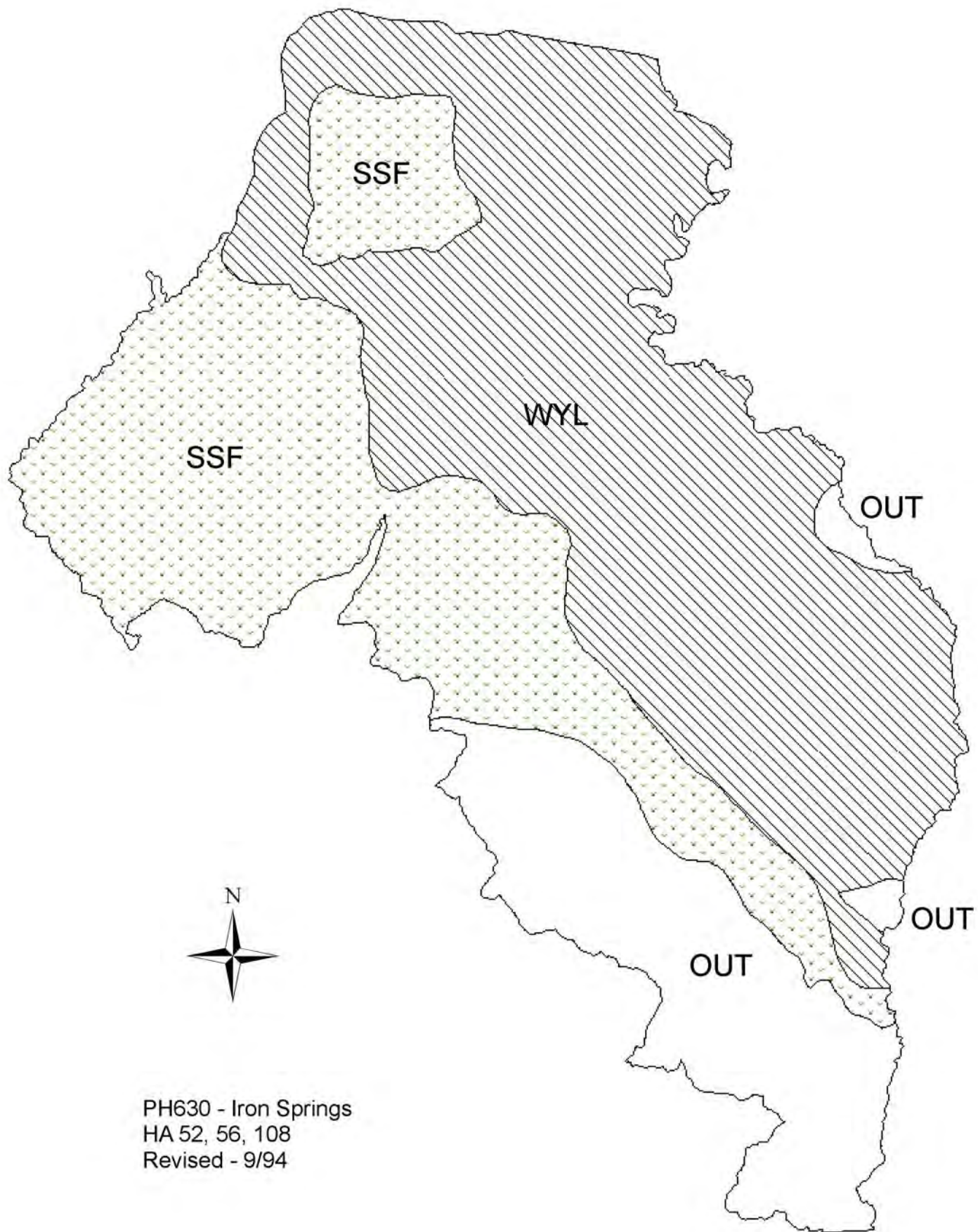
Year	Classification Counts					Harvest				
	Juvenile/Female Ratio		Total Male/Female Ratio			Total Harvest		Segment Harvest Rate (% of		Females
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	
1993		46.93	2.11	50.58	48.87	2.17	713	423	71	1207
1994		58.25	2.90	51.54	54.15	2.76	628	414	93	1135
1995		40.93	2.01	49.79	49.79	2.28	602	366	71	1039
1996		57.15	2.50	46.18	46.18	2.17	487	168	49	704
1997		42.12	2.06	48.59	50.78	2.33	422	87	30	539
1998		57.29	2.68	43.53	41.83	2.17	416	56	22	494
1999		65.16	2.89	47.75	47.74	2.34	407	79	12	498
2000		60.58	2.76	53.08	53.08	2.52	406	76	9	491
2001		61.67	2.95	55.87	52.96	2.66	395	69	15	479
2002		61.30	2.78	61.32	70.60	3.07	418	115	15	548
2003		54.75	2.55	59.69	60.58	2.73	631	176	21	828
2004		65.09	2.53	54.58	53.56	2.22	649	155	19	823
2005		65.26	2.57	49.48	47.49	2.07	682	178	17	877
2006		57.10	2.22	53.48	54.40	2.15	751	198	30	979
2007		59.57	2.26	48.58	48.58	1.97	653	191	28	872
2008		48.67	2.04	45.35	48.50	2.04	325	144	11	480
2009		48.81	2.03	45.04	42.52	1.85	503	265	63	831
2010		51.65	2.04	46.27	46.37	1.90	453	332	38	823
2011		60.48	2.44	44.73	44.62	1.99	523	334	53	910
2012		47.92	1.98	46.16	45.31	1.91			326	823
2013		51.67	2.09	45.00	45.00	1.90			305	755
2014										
2015										
2016										
2017										
2018										
2019										
2020										
2021										
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2023										
2024										
2025										



FIGURES



Comments:



## 2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR631 - WIND RIVER

HUNT AREAS: 84

PREPARED BY: GREG  
ANDERSON

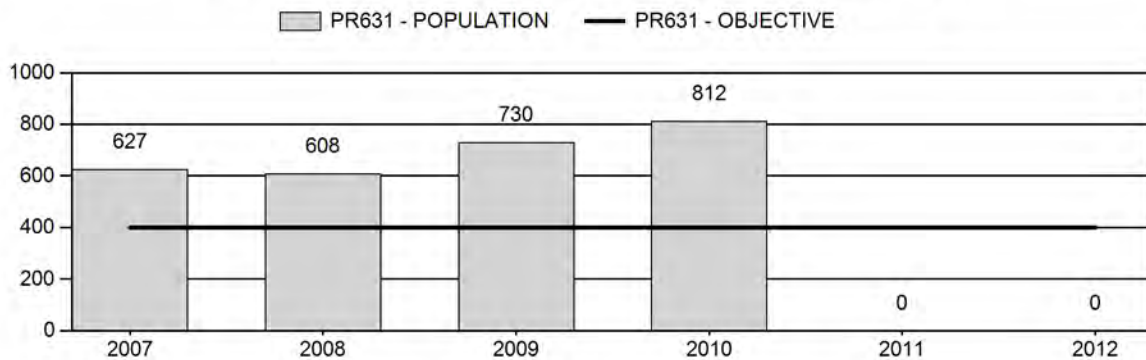
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	555	N/A	N/A
Harvest:	80	140	130
Hunters:	78	133	125
Hunter Success:	103%	105%	104%
Active Licenses:	97	164	150
Active License Percent:	82%	85%	87%
Recreation Days:	441	680	650
Days Per Animal:	5.5	4.9	5
Males per 100 Females	33	37	
Juveniles per 100 Females	49	45	

Population Objective:	400
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0
Model Date:	None

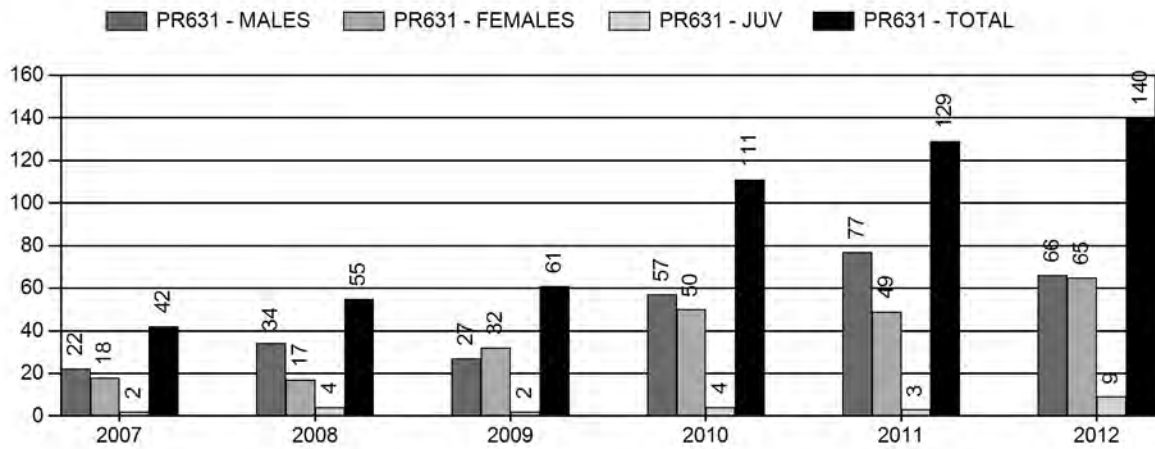
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	0%	0%
Males $\geq$ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%
Total:	0%	0%
Proposed change in post-season population:	0%	0%

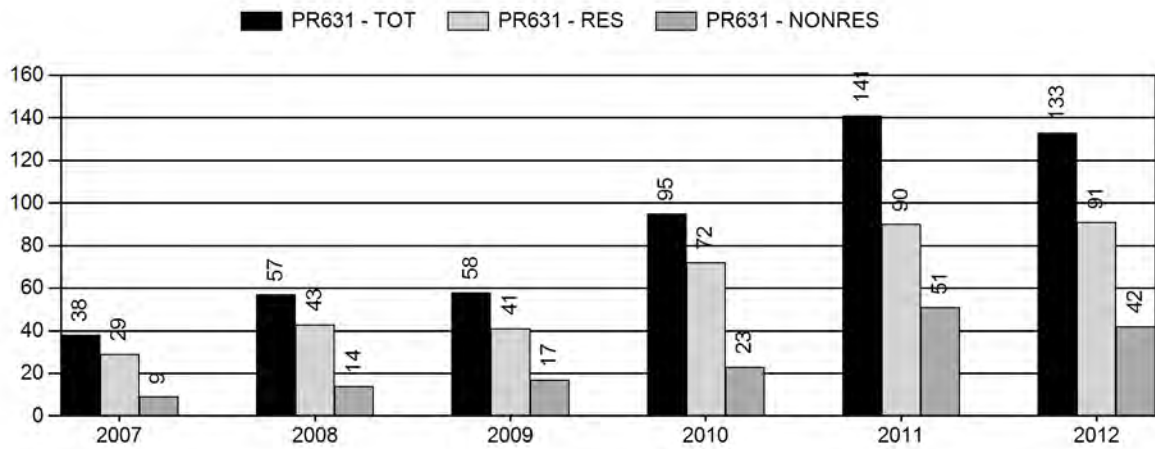
## Population Size - Postseason



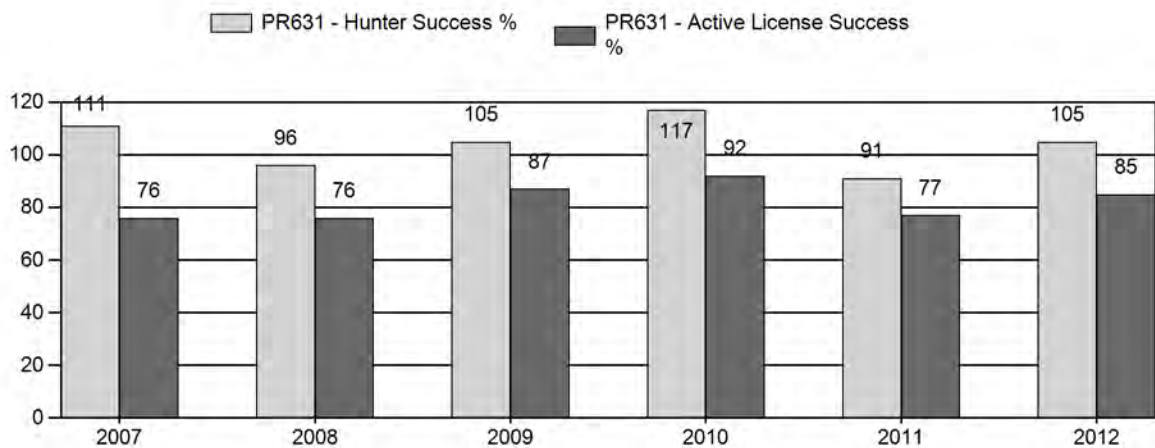
## Harvest



## Number of Hunters

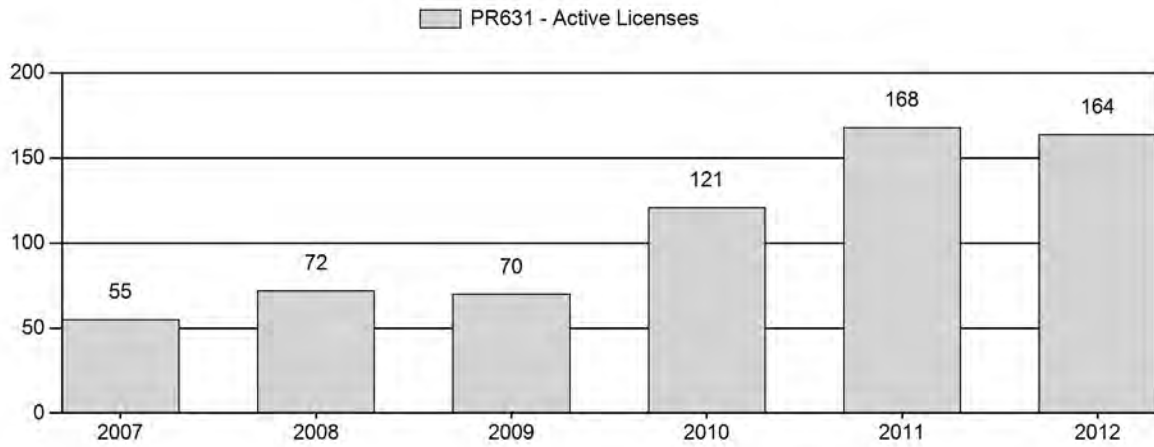


## Harvest Success

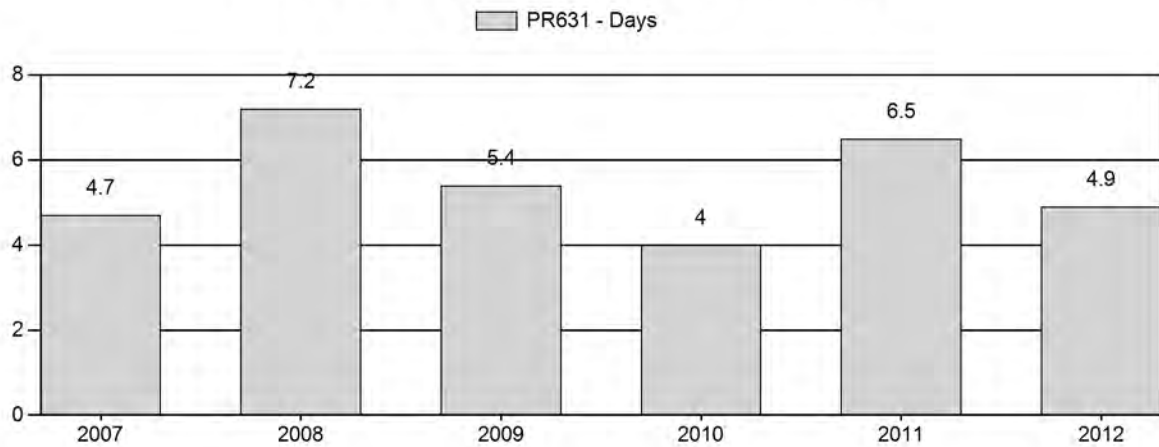




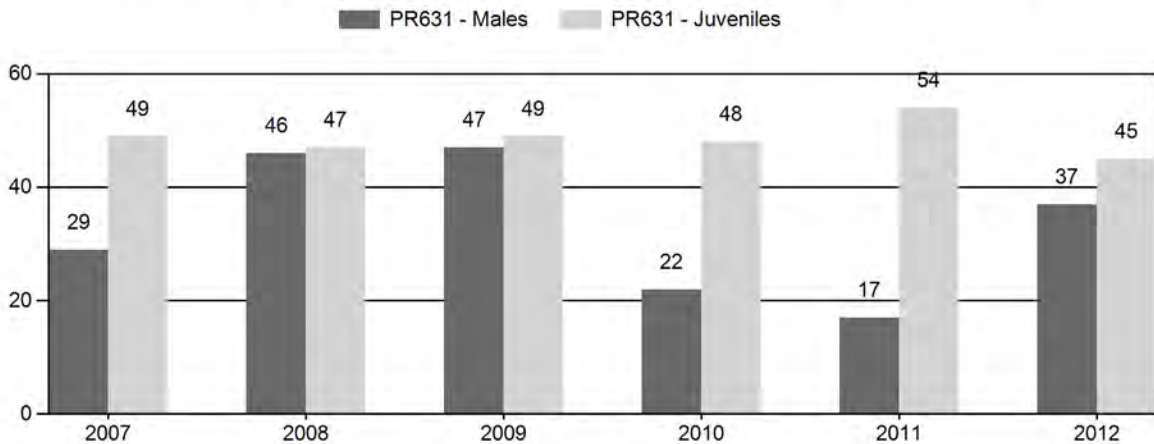
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



## 2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR631 - WIND RIVER

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	669	0	0	70	16%	245	56%	120	28%	435	454	0	0	29	± 0	49	± 0	38
2008	663	0	0	103	24%	223	52%	105	24%	431	453	0	0	46	± 0	47	± 0	32
2009	790	0	0	123	24%	262	51%	129	25%	514	523	0	0	47	± 0	49	± 0	34
2010	923	0	0	79	13%	352	59%	169	28%	600	541	0	0	22	± 0	48	± 0	39
2011	0	4	17	21	10%	124	58%	67	32%	212	0	3	14	17	± 0	54	± 0	46
2012	0	7	29	36	20%	97	55%	44	25%	177	0	7	30	37	± 0	45	± 0	33

**2013 HUNTING SEASONS  
WIND RIVER PRONGHORN (PR 631)**

Hunt Area	Type	Season Dates Opens	Closes	Quota	Limitations
84	1	Sep. 21	Oct. 22	75	Limited quota licenses; any antelope
	6	Sep. 21	Oct. 22	75	Limited quota licenses; doe or fawn
Archery		Aug. 15	Sep. 20		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
84	6	-25
<b>Total</b>	<b>6</b>	<b>-25</b>

**Management Evaluation**

**Current Management Objective: 400**

**Management Strategy: Recreational**

**2012 Postseason Population Estimate: unknown**

**2013 Proposed Postseason Population Estimate: unknown**

**Management Issues**

The Wind River pronghorn herd has a management objective of 400 with a recreational management strategy. This objective has been in place since 1994. Despite the length of time the numerical objective has been on record, personnel have never been able to effectively estimate the population based on interchange with the Wind River Reservation (WRR) and difficulty collecting adequate demographic data in the mountainous terrain throughout the herd unit. Over the next several years, the Lander Region plans to adopt a suitable alternative objective.

**Habitat/Weather**

This pronghorn population occupies the upper Wind River basin west of the WRR. Much of the habitat throughout the herd unit is marginal or unsuitable. Pronghorn densities are highest on the east end of the herd unit where they occupy deer and elk winter range throughout the summer months. Some pronghorn winter on bare slopes in the mountain foothills, but many migrate east down the Wind River onto the WRR. Available habitat and climatic conditions seem to be the biggest factors limiting this population.

Much of the pronghorn range in the herd unit was subject to extreme drought during the 2012 spring and summer. Very little new forage or browse grew throughout the area. Some pronghorn spending summer in higher mountain basins would have had access to better feed resources.

### **Field/Harvest Data/Population**

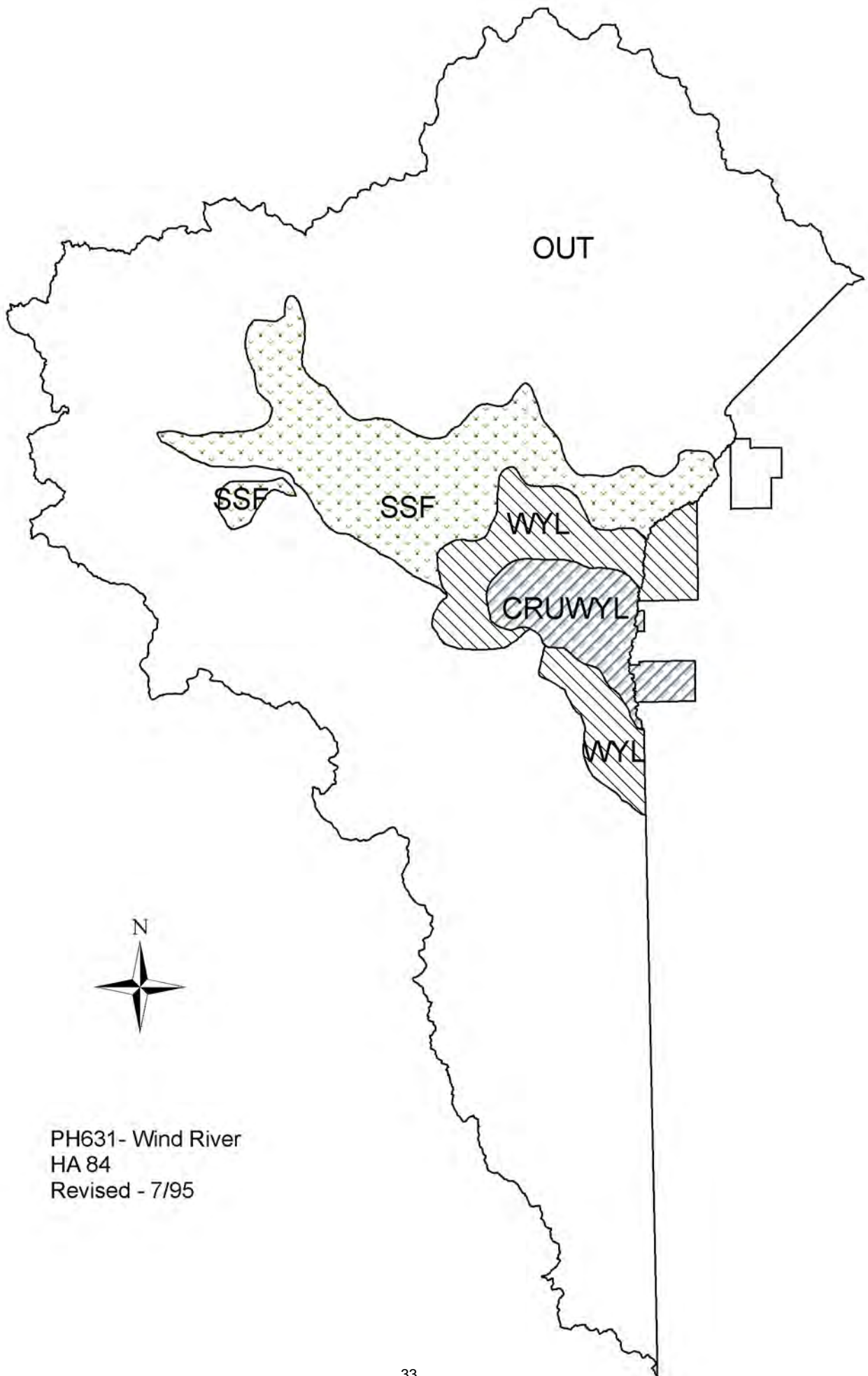
Poor feed conditions were not immediately manifested in classification data. The 2012 fawn/doe ratio was 45/100. This is low for most pronghorn herds, but not atypical in this herd unit with the doe/fawn ratio averaging 49/100 over the past 5 years. The 2012 buck/doe ratio was 37/100. Again this is not atypically low for this population. It should be noted; the classification ratios are based on very small sample sizes and not considered reliable. The unreliable classification data combined with significant interchange with the WRR precludes the construction of a population model. The 2012 classification sample was the lowest of the past five years. Personnel discontinued aerial classifications in 2011 which resulted in significantly smaller classification samples than in previous years. That said, it did appear there were fewer pronghorn at traditionally occupied areas. It is likely this population was impacted by a particularly harsh winter in 2010 similar to neighboring herds.

Harvest statistics for 2012 are unremarkable. The Type 1 license success was 90%. Over the past decade, Type 1 license success has fluctuated from a low of 56% to a high of 97% with no directional trend apparent. Similarly, Type 6 license success has shown dramatic year-to-year changes with no consistent trend. The days/animal statistic is likewise uninformative due to fluctuations, but no trend.

### **Management Summary**

Given ambiguous harvest statistics and scarce demographic data it is difficult to make strong statements regarding population trend in this herd unit. Anecdotally, based on public and personnel observations, it appears this population grew substantially from the middle to end of the past decade. Following a harsh winter in 2010 and extreme drought in 2012 it seems the population declined. This follows demographic trends in several neighboring herd units. Scarce classification data indicate the buck/doe ratio increased the past year. The 2013 hunt season will slightly reduce pressure on the population in response to the perceived population decline. Given good harvest success on Type 1 licenses, numbers will not be reduced in order to provide the same amount of recreational opportunity as in 2012.





PH631- Wind River  
HA 84  
Revised - 7/95



## 2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR632 - BEAVER RIM

HUNT AREAS: 65-69, 74, 106

PREPARED BY: STAN HARTER

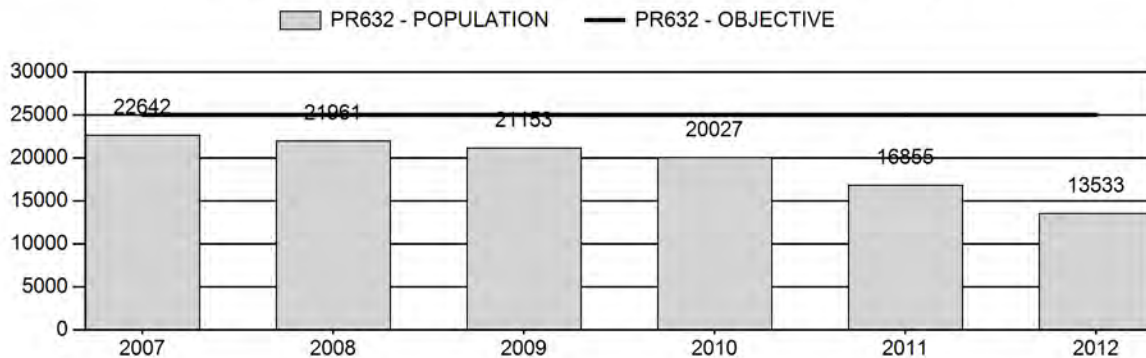
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	20,528	13,533	13,719
Harvest:	2,438	2,670	1,270
Hunters:	2,466	2,655	1,450
Hunter Success:	99%	101%	88 %
Active Licenses:	2,790	3,017	1,460
Active License Percent:	87%	88%	87 %
Recreation Days:	7,909	8,189	4,300
Days Per Animal:	3.2	3.1	3.4
Males per 100 Females	56	54	
Juveniles per 100 Females	61	47	

Population Objective:	25,000
Management Strategy:	Special
Percent population is above (+) or below (-) objective:	-45.9%
Number of years population has been + or - objective in recent trend:	6
Model Date:	4/3/2013

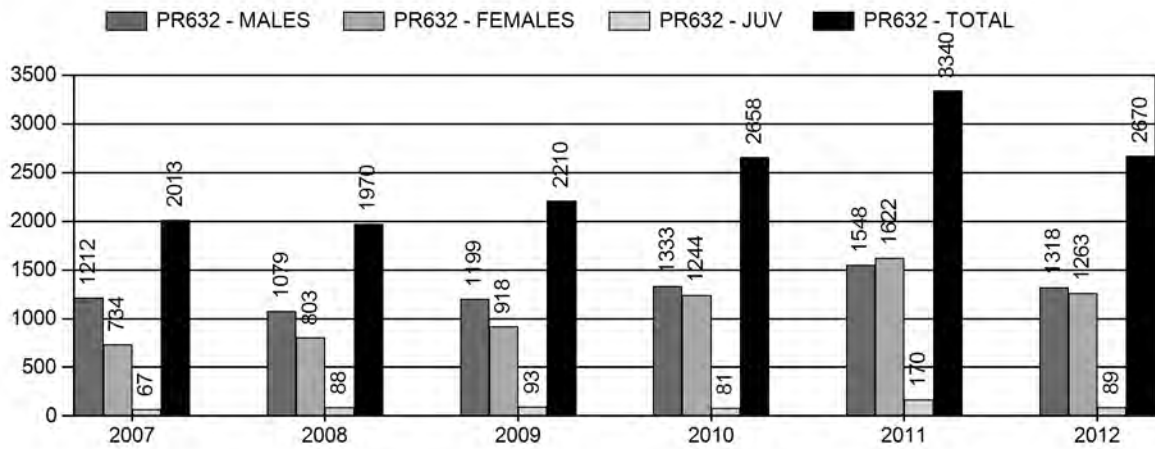
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	17.1%	3.3%
Males $\geq$ 1 year old:	32.1%	27.9%
Juveniles (< 1 year old):	0.2%	0.1%
Total:	16.2%	8.4%
Proposed change in post-season population:	-19.7%	+1.4%

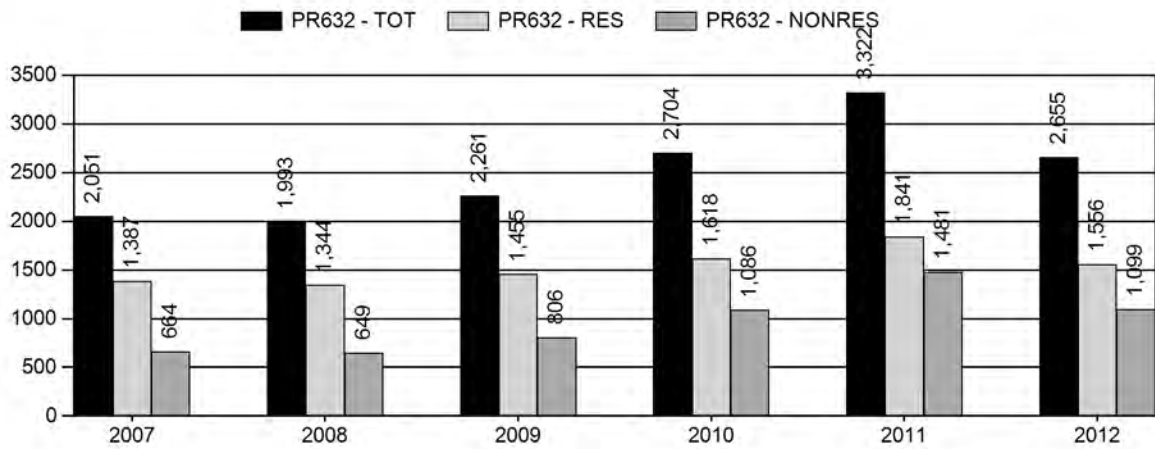
## Population Size - Postseason



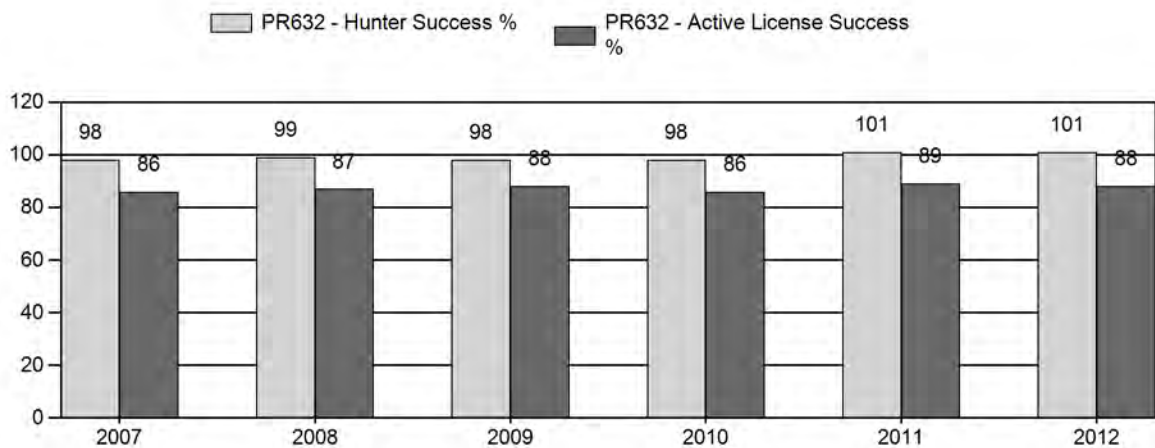
## Harvest



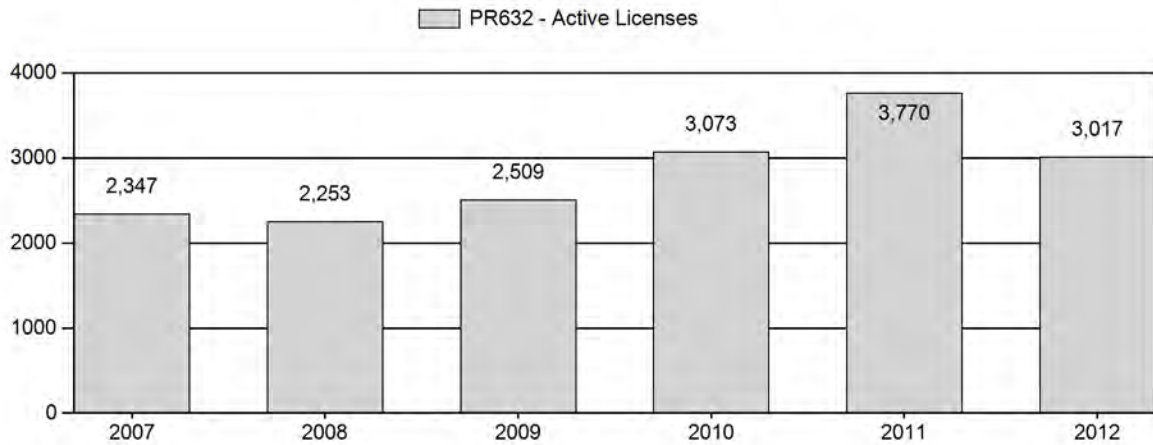
## Number of Hunters



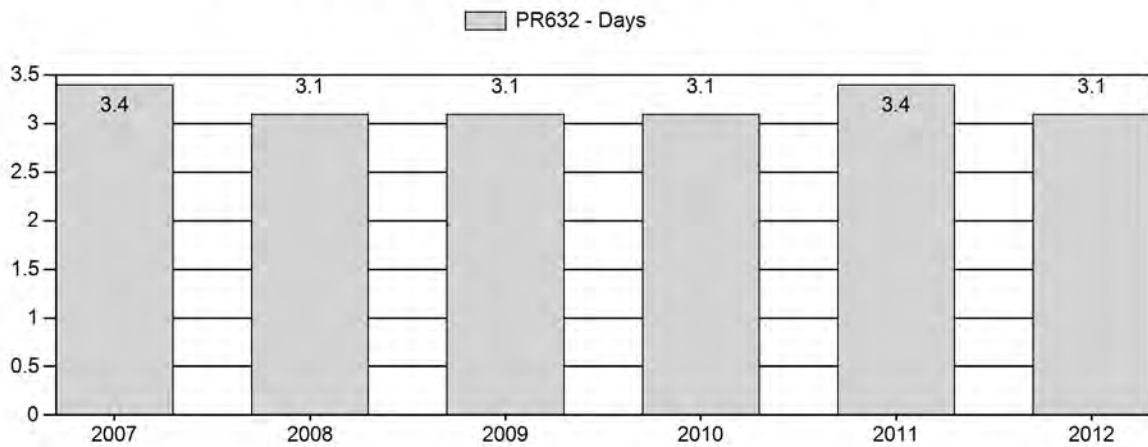
## Harvest Success



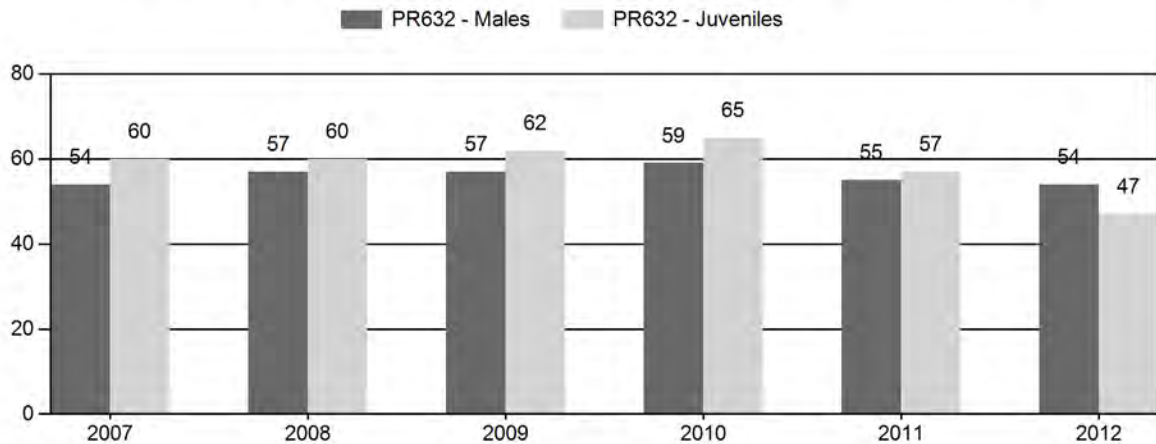
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



## 2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR632 - BEAVER RIM

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylg	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	24,856	514	1,456	1,970	25%	3,623	47%	2,171	28%	7,764	2,057	14	40	54	± 2	60	± 2	39
2008	24,128	687	1,447	2,134	26%	3,747	46%	2,232	28%	8,113	2,064	18	39	57	± 2	60	± 2	38
2009	23,584	649	1,673	2,322	26%	4,109	46%	2,529	28%	8,960	2,190	16	41	57	± 2	62	± 2	39
2010	22,951	778	1,745	2,523	26%	4,278	45%	2,800	29%	9,601	2,381	18	41	59	± 2	65	± 2	41
2011	20,529	521	1,413	1,934	26%	3,544	47%	2,011	27%	7,489	1,893	15	40	55	± 2	57	± 2	37
2012	16,470	317	1,234	1,551	27%	2,867	50%	1,350	23%	5,768	1,766	11	43	54	± 2	47	± 2	31

**2013 HUNTING SEASONS**  
**Beaver Rim Pronghorn Herd Unit (PR 632)**

<b>HUNT AREA</b>	<b>TYPE</b>	<b>Season Dates</b>		<b>Limited Quota</b>	<b>LIMITATIONS</b>
		<b>OPENS</b>	<b>CLOSES</b>		
65	1	Sept. 21	Oct. 22	75	Limited quota licenses; any antelope
	6	Sept. 21	Oct. 22	50	Limited quota licenses; doe or fawn valid north of the Little Popo Agie River
66	1	Sept. 21	Oct. 22	75	Limited quota licenses; any antelope
	6	Sept. 21	Oct. 22	75	Limited quota licenses; doe or fawn
67	1	Sept. 21	Oct. 22	300	Limited quota licenses; any antelope
	6	Sept. 21	Oct. 22	25	Limited quota licenses; doe or fawn
68	1	Sept. 21	Oct. 22	300	Limited quota licenses; any antelope
	6	Sept. 21	Oct. 22	50	Limited quota licenses; doe or fawn
69	1	Sept. 15	Oct. 31	100	Limited quota licenses; any antelope
	6	Sept. 15	Oct. 31	25	Limited quota licenses; doe or fawn
74	1	Sept. 21	Oct. 22	200	Limited quota licenses; any antelope
	6	Sept. 21	Oct. 22	25	Limited quota licenses; doe or fawn
106	1	Sept. 21	Oct. 22	125	Limited quota licenses; any antelope
	6	Sept. 21	Oct. 22	50	Limited quota licenses; doe or fawn
<b>Archery</b>					
65-68, 74, 106		Aug. 15	Aug. 20		Refer to Section 3 of this Chapter
69		Aug. 15	Sept. 14		Refer to Section 3 of this Chapter

Hunt Area	Type	Change from 2012
65	1	-75
	6	-150
	7	-50
66	1	-50
	6	-75
67	1	-75
	6	-175
68	1	-50
	6	-300
69	1	-50
	6	-75
74	1	-50
	6	-250
106	1	-150
	6	-300
<b>Total PR 632</b>	<b>1</b>	<b>-500</b>
	<b>6 &amp; 7</b>	<b>-1375</b>
		<b>-1875</b>

## **MANAGEMENT EVALUATION**

**Current Management Objective: 25,000**

**Management Strategy: Special (60-70 bucks/100 does)**

**2012 Post-season Population Estimate: ~13,600**

**2013 Post-season Population Estimate: ~14,000**

### **Herd Unit Issues**

Habitats are relatively intact with localized energy development and agricultural developments scattered throughout the herd unit, and urban/rural residential development occurring primarily near Lander. This population fluctuated below objective in the 1990s, approached the objective in the mid-2000s, and subsequently declined to a 2012 post-season population of about 13,600 pronghorn, about 45% below objective.

### **Weather/Habitat**

Weather conditions have been variable for several years, with winter mortality apparently resulting from crusted snow conditions in winter 2009-10, followed by cold, wet, and snowy conditions occurring well into June 2010. Winter 2010-11 seemed to duplicate these conditions with crusted snow, followed by cold, wet spring weather impacting newborn fawns. Drought conditions have been extreme to exceptional for the past year, beginning with minimal snowfall in winter 2011-12 and continuing with almost no precipitation during spring and summer 2012. This resulted in an almost complete lack of herbaceous or browse forage production across the herd unit. Thus, poor body condition was observed in many pronghorn by late-summer, especially lactating females attempting to raise fawns into fall. Many does were observed in late-August with backbones and ribs showing. A few carcasses were discovered near water sources such as murky, nearly dry stock reservoirs, possibly indicating diseases such as epizootic hemorrhagic disease (EHD) were responsible. In spite of fairly mild winter conditions in 2012-



13, early winter mortality was probably above average due to the poor body condition of pronghorn entering winter. Winter losses may have been partially averted with the 2012 harvest removing surplus pronghorn.

By early April, drought was expected to worsen through 2013. However, a series of several late winter/early spring snow storms produced over 50" of snow through early May (the equivalent of nearly 4" precipitation) in Lander, with more snow reported in Sinks Canyon (up to 78") and other locations along the east slope of the Wind River Range. These storms have proven extremely helpful in lessening the effects of drought, yet they only helped change the drought status from Extreme to Severe. Unless more precipitation is received in May and June, little habitat improvement (especially shrubs, aspen, and riparian) will be achieved. Additionally, the heaviest precipitation was received in the Lander Foothills, with areas such as South Pass, Jeffrey City, and Sweetwater River drainage receiving much less snow in April.

### **Population**

A spreadsheet model was developed for this population in 2012, utilizing pre-season classification and harvest data from 1994-2012, with 6 triennial line-transect (LT) estimates. The CJ, CA model was selected because it had the lowest Relative AICc value and generated population estimates that are either closely aligned with the LT point estimate or lie within the 95% confidence intervals (CI) for 5 of 6 LT estimates. Therefore, the model is considered Good to Excellent. The latest LT survey was conducted in bio-year 2010, with a resultant end-of-year population estimate of almost 20,000. The spreadsheet model simulates the 2010 end-of-year trend below the CI for that LT, with the post-season estimate actually being equal to the LT estimate for that year. Regardless, the model appears to consistently follow perceived population trends.

### **Field Data**

Fawn/doe ratios have declined the past 3 years to 47J/100F in 2012, the lowest in 18 years. Buck/doe ratios also declined to 54M/100F in 2012, but this decline was less prominent than for the fawn/doe ratio, indicating fawn survival was low in summer 2012. As a result, we anticipate reduced yearling recruitment into 2013. Drought is predicted to persist in 2013, and we anticipate fawn production/recruitment to again decline.

### **Harvest Data**

Despite obvious declines in pronghorn numbers, 2012 harvest statistics indicated appropriate seasons were in place. Total harvest success of about 88% and 3.1 days per animal harvested were almost identical to the average of the previous 5 years. However, this is a large herd unit and success rates were more variable between hunt areas, and concerns about low pronghorn numbers were heard from hunters in some areas. Adjustments to annual season recommendations consider these variables combined with variations in classification data to best fit harvest to individual hunt areas.

### **Management Summary**

For 2013, we are making significant reductions to license numbers (primarily doe/fawn licenses) to stave off additional population decline, while providing hunter opportunity where appropriate. These reductions are also consistent with public comments received during hunting seasons and

at public meetings. With declining population trend and concern about drought and potential for increased winter mortality, we removed all Type 6 and 7 licenses from the 2013 application information. However, we have reinstated minimal numbers of doe/fawn licenses in most areas to focus hunters into specific hayfield damage prone areas and to show our concern about population growth in during this period of poor habitat quality.

We believe the seasons outlined above will be acceptable to the public and should curb population decline if drought lessens and fawn production levels improve. A total of 1,175 any antelope and 300 doe/fawn licenses are available for 2013, and should result in a harvest of approximately 1,200 animals. With average survival in combination with our harvest, we anticipate the population to remain stable at just under 14,000 pronghorn.



Survival and Initial Population Estimates

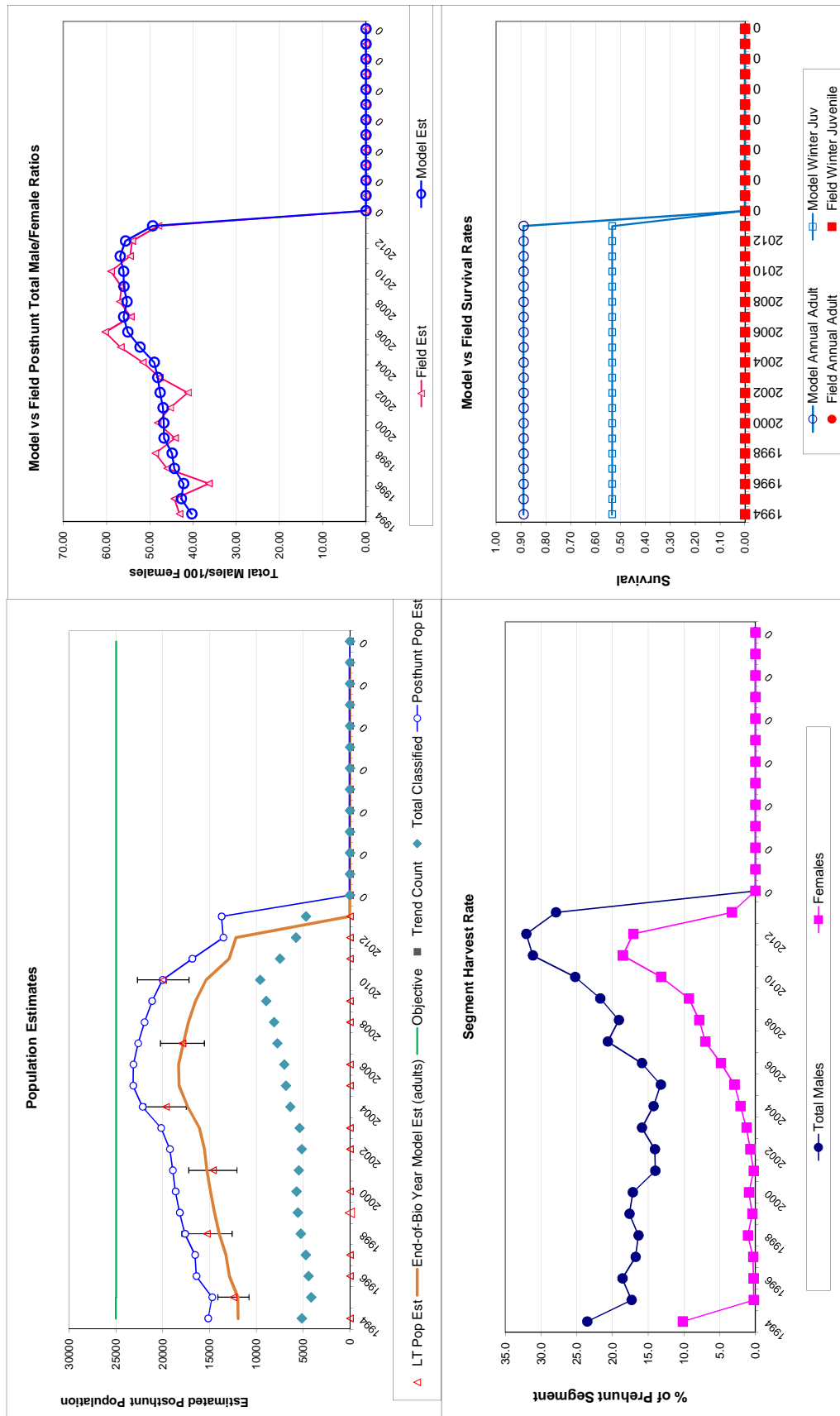
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1994	0.53		0.89	
1995	0.53		0.89	
1996	0.53		0.89	
1997	0.53		0.89	
1998	0.53		0.89	
1999	0.53		0.89	
2000	0.53		0.89	
2001	0.53		0.89	
2002	0.53		0.89	
2003	0.53		0.89	
2004	0.53		0.89	
2005	0.53		0.89	
2006	0.53		0.89	
2007	0.53		0.89	
2008	0.53		0.89	
2009	0.53		0.89	
2010	0.53		0.89	
2011	0.53		0.89	
2012	0.53		0.89	
2013	0.53		0.89	
0				
0				
0				
0				
0				
0				
0				
0				
0				
0				
0				

<b>Parameters:</b>	
Juvenile Survival =	0.534
Adult Survival =	0.889
Initial Total Male Pop/10,000 =	0.361
Initial Female Pop/10,000 =	0.896

<b>MODEL ASSUMPTIONS</b>	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
<b>Over-summer adult survival</b>	<b>98%</b>

[illegible]

FIGURES



Comments:

**Beaver Rim Pronghorn (PR632)  
HA 65, 66, 67, 68, 69, 74, 106  
Revised September 2011**

Pronghorn Hunt Area Boundaries

**Pronghorn Seasonal Range**

**RANGE**

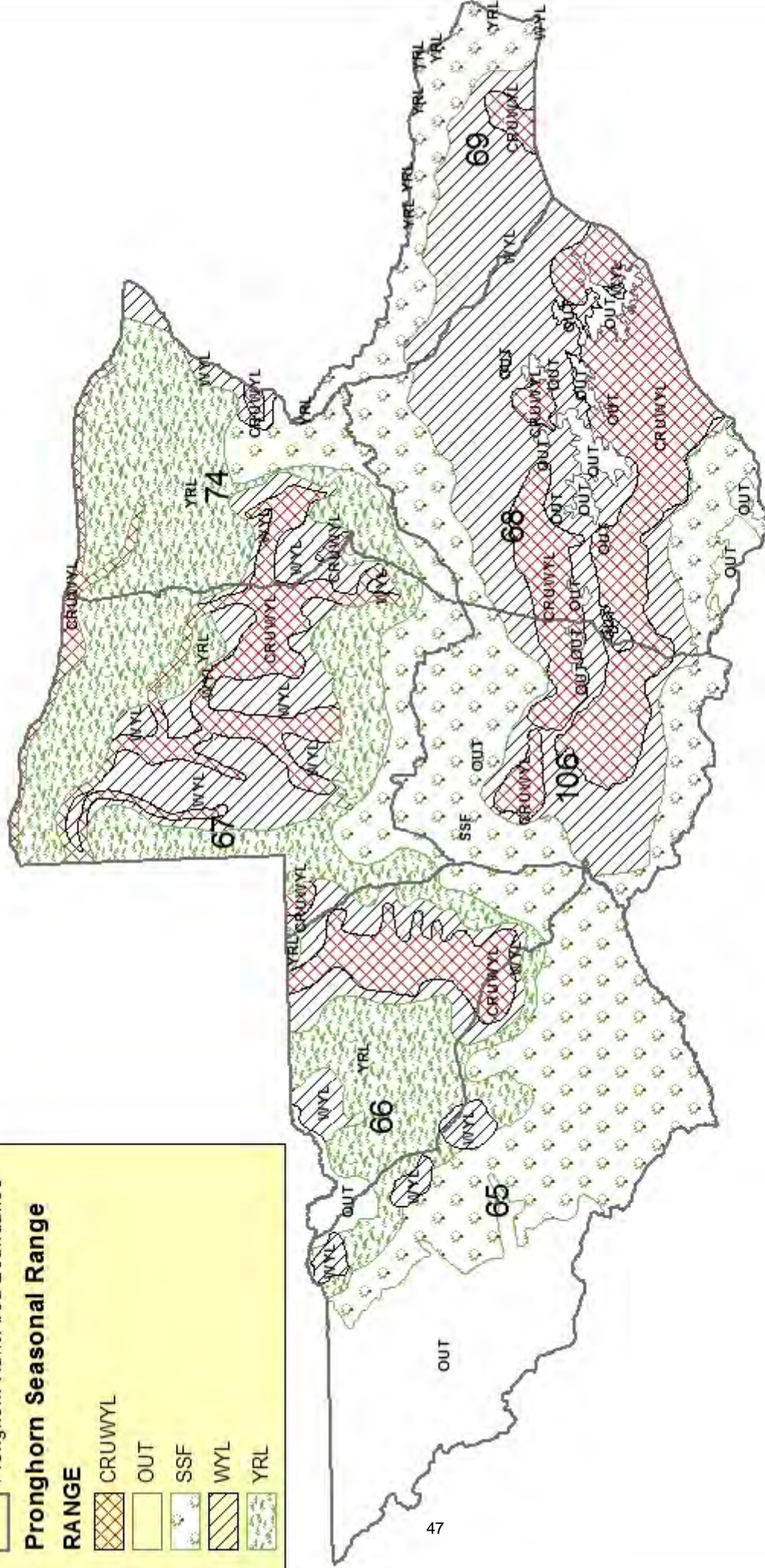
CRUWYL

OUT

SSF

WYL

YRL







## 2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR634 - BADWATER

HUNT AREAS: 75

PREPARED BY: GREG  
ANDERSON

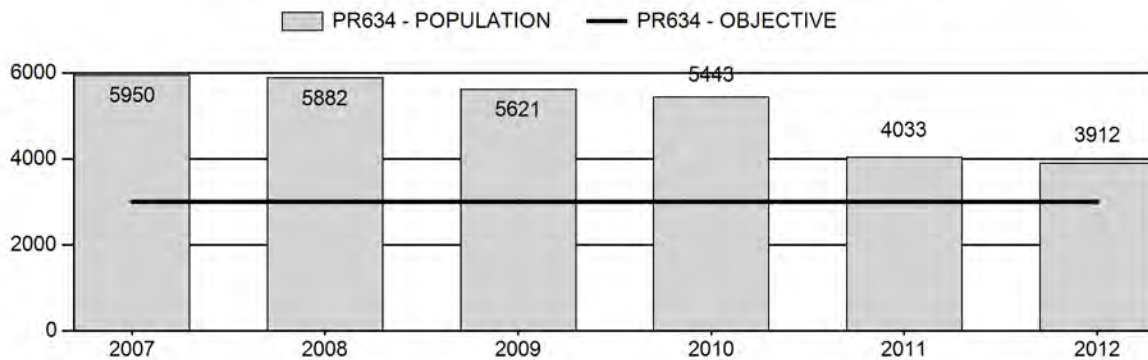
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	5,386	3,912	3,126
Harvest:	643	671	565
Hunters:	673	696	615
Hunter Success:	96%	96%	92 %
Active Licenses:	721	771	630
Active License Percent:	89%	87%	90 %
Recreation Days:	2,091	2,637	2,000
Days Per Animal:	3.3	3.9	3.5
Males per 100 Females	65	60	
Juveniles per 100 Females	52	54	

Population Objective: 3,000  
 Management Strategy: Recreational  
 Percent population is above (+) or below (-) objective: 30%  
 Number of years population has been + or - objective in recent trend: 10  
 Model Date: 6/5/2013

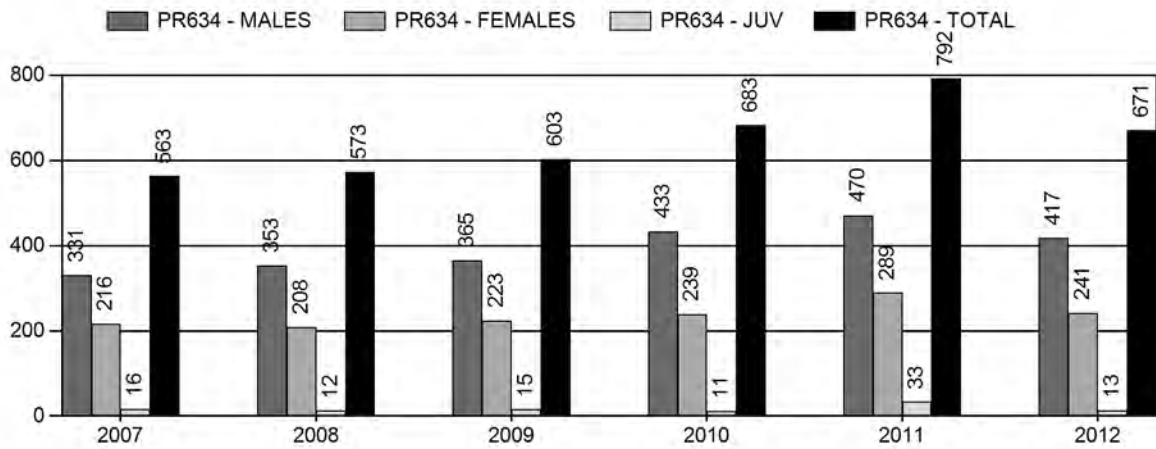
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	12%	12%
Males $\geq$ 1 year old:	38%	45%
Juveniles (< 1 year old):	1%	1%
Total:	14%	15%
Proposed change in post-season population:	-3%	-20%

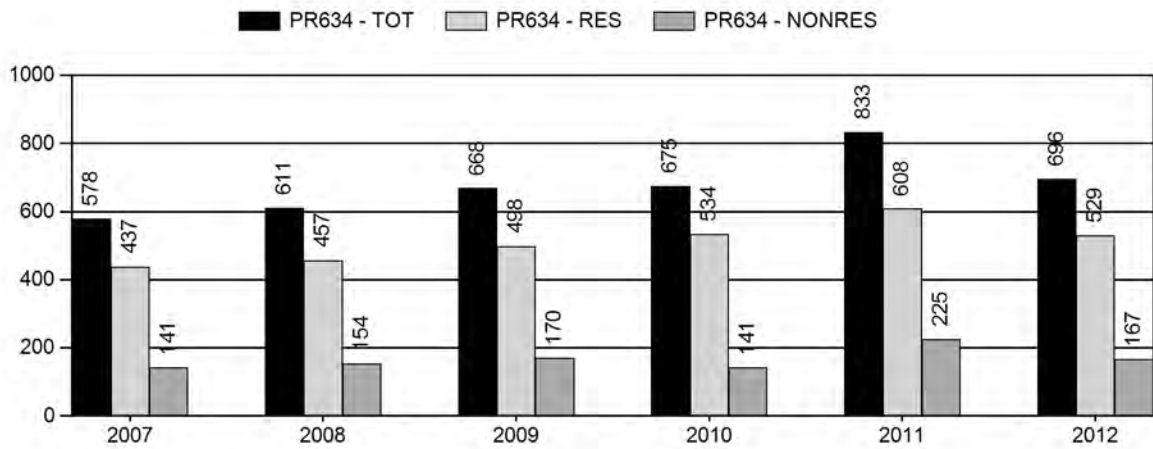
## Population Size - Postseason



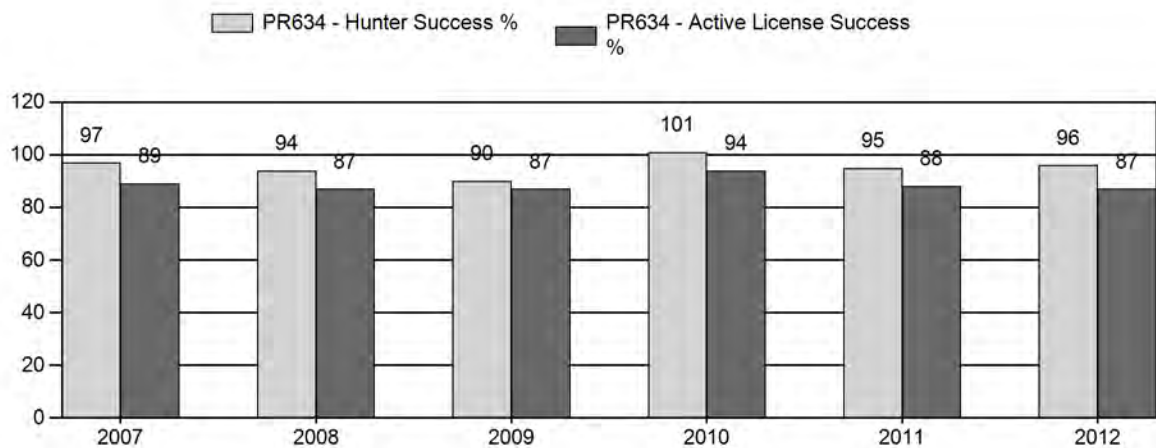
## Harvest



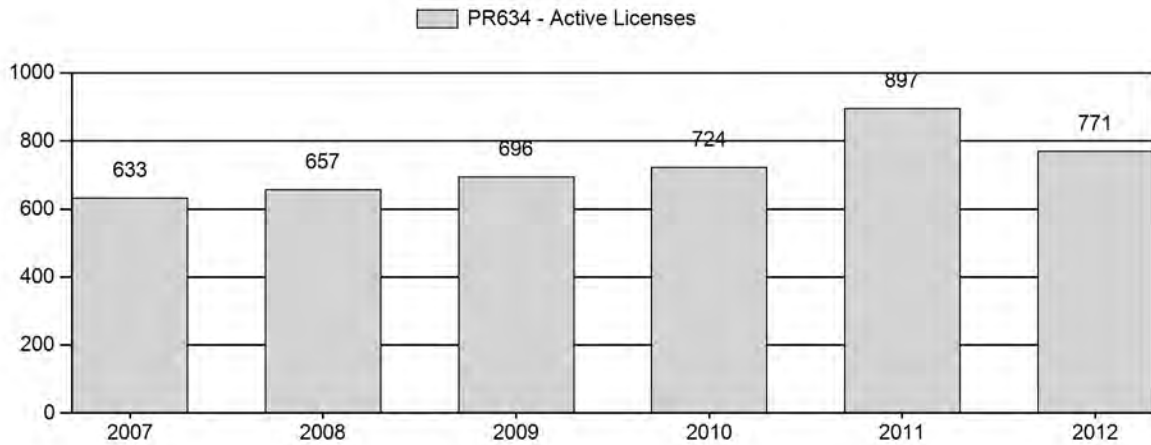
## Number of Hunters



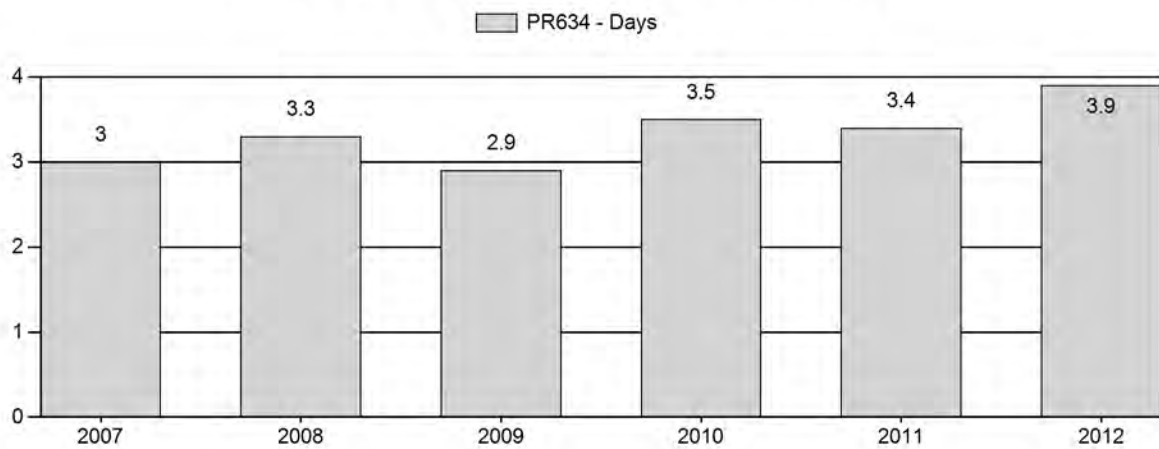
## Harvest Success



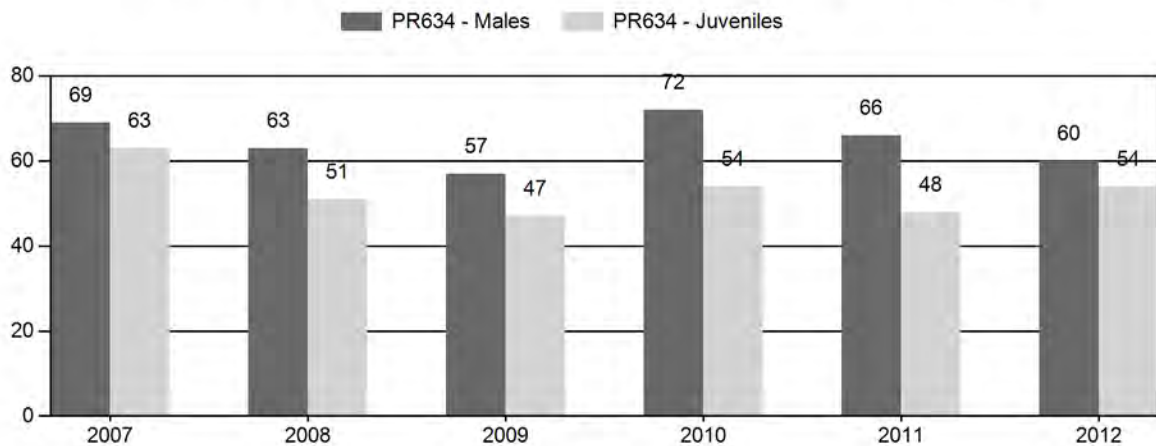
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



## 2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR634 - BADWATER

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	6,558	140	293	433	30%	630	43%	397	27%	1,460	1,900	22	47	69	± 6	63	± 6	37
2008	6,512	176	361	537	29%	858	47%	439	24%	1,834	1,489	21	42	63	± 5	51	± 4	31
2009	6,285	164	360	524	28%	923	49%	433	23%	1,880	1,279	18	39	57	± 4	47	± 4	30
2010	6,195	191	425	616	32%	860	44%	464	24%	1,940	1,955	22	49	72	± 5	54	± 4	31
2011	4,904	113	468	581	31%	875	47%	421	22%	1,877	1,689	13	53	66	± 5	48	± 4	29
2012	4,650	83	296	379	28%	631	47%	339	25%	1,349	1,522	13	47	60	± 5	54	± 5	34

**2013 HUNTING SEASONS  
BADWATER PRONGHORN (PR 634)**

Hunt Area	Type	Season Dates Opens	Closes	Quota	Limitations
75	1	Sep. 21	Oct. 22	400	Limited quota licenses; any antelope
	6	Sep. 21	Oct. 22	250	Limited quota licenses; doe or fawn
Archery		Aug. 15	Sep. 20		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
75	1	-150
	6	-50
<b>Total</b>	<b>1</b>	<b>-150</b>
	<b>6</b>	<b>-50</b>

**Management Evaluation**

**Current Management Objective: 3,000**

**Management Strategy: Recreational**

**2012 Postseason Population Estimate: ~3,900**

**2013 Proposed Postseason Population Estimate: ~3,100**

**Management Issues**

The Badwater pronghorn herd is managed toward a numerical objective of 3,000. The population is estimated using a spreadsheet model developed in 2012 and updated in 2013. The herd is managed for recreational opportunity. The objective was last reviewed in 1994.

This pronghorn population inhabits a heavily industrialized area in central Wyoming. Much of the herd unit has or will soon be designated as a special management area emphasizing oil and gas production in both the Casper and Lander BLM RMPs. The Lander BLM is currently beginning to analyze a proposal by EnCana to develop approximately 4,200 oil/gas wells in the central part of the herd unit. Given the commodities production emphasis in the area, it is likely a significant amount of pronghorn habitat will be lost or degraded over the next 20 years.

**Habitat/Weather**

Over the past year, drought conditions were extreme in this herd unit. There was minimal snowfall during the 2011/12 winter and almost no precipitation throughout the spring and summer. The end result was essentially no forage/browse production throughout the herd unit. Given the poor feed resource, pronghorn body condition in the herd unit was generally quite poor.

entering the 2012/13 winter. This was particularly true for reproductively successful does that succeeded in raising fawns through early fall. Despite relatively mild winter conditions in 2012/13 it is likely early winter mortality was above average due to the poor body condition of many animals in the fall.

## **Population**

The population estimate for 2012 is approximately 3,900 pronghorn. The population is 30% above objective. This population increased steadily in the late 1990's through the mid 2000's. The population peaked around 2007 at approximately 5,900 animals according the most recent population model. Over the past 6 years the population has declined dramatically and is expected to be at objective in 2013. The 2013 post-season population estimate is 3,100 antelope. The long-term population decline is a result of extended, poor environmental conditions combined with increased harvest designed to reduce the population to objective.

In 2012, a spreadsheet model was developed for this population. The model behaved predictably with the addition of 2012 data and appears to track population trends reliably. In addition to 2012 field data, the model was updated with a line transect estimate from a survey flown on 5/21/13. For 2012, the SCJ, SCA version of the model was selected to simulate the population. Annual juvenile survival in the model is 0.9 and considered reasonable for the area. The SCJ, SCA model has two years with modified juvenile survival to account for extreme winter conditions in 2010 and extreme drought conditions in 2012. Juvenile survival for both these years is fixed at 0.4. This model version produces population estimates mirroring field personnel impressions and supported by harvest statistics. The model attempts to track 6 line transect estimates over the past 20 years. The estimates from 2007 and 2010 were vastly different and the model is unable to track through the CIs of the estimates effectively. Nevertheless, the model produces a peak estimate in 2007 and shows a significant population decline over the past 6 years with a marked reduction over the past 2 years. The model appears to track population trends in the herd unit well and estimates from the past several years are supported by trends in classification data as well as harvest statistics. Due to the lack of survival estimates, the model is considered a fair simulation.

Data from the 2013 line transect survey is detailed in Appendix I. The survey produced a population estimate of 2303 antelope with a CV of 22.9. The high CV is a bit of a concern, but much of the variation was due to the low encounter rate (only 75 antelope groups were observed). Transect lines were 1.5 degrees apart so it would be difficult to boost the number of groups observed by adding lines. It is likely high variation will always be associated with population estimates from this herd unit due to the low number of group observations. That said, 6 detection functions were analyzed using the survey data with estimates varying from 1977 to 2420 antelope. All but one model produced estimates within 10% of each other. The negative exponential detection function was selected for use in estimation because it had a similar CV to other models but required no additional adjustment terms to track the data. The negative exponential curve also appeared to track a histogram of the data more closely than other detection curves.

### **Field Data**

The decline projected in the population model is also notable in classification data where personnel observed significantly fewer pronghorn along classification routes in 2012. Additionally, the buck/doe ratio in the area has steadily declined over the past 3 years from 72/100 to 60/100 in 2012. Fawn recruitment was fairly low in 2012 with a fawn/doe ratio of 54/100. Although low, this recruitment is not atypical for the herd unit over the past five years. It is likely fawn survival will be lower than average over the 2012/13 winter due to lack of feed resources.

### **Harvest Data**

Harvest statistics also indicate a noticeable population decline over the past couple of years. Type 1 license success declined from 91% in 2010 to 89% in 2011 to 86% in 2012. Also in 2012, 4% of Type 1 license holders harvested does. This was a significantly higher percentage than any time over the past five years. While the days/animal of 3.7 was the same in 2012 as in 2011, it was a significant increase from the 2010 figure of 2.7.

### **Management Summary**

Given the population decline over the past several years, expected low survival over the 2012/13 winter, and the fact the population is predicted to be at objective post-season 2013, Type 6 licenses will be reduced slightly in 2013. Type 1 licenses will be reduced a bit more given the declining buck/doe ratio over the past several years and an expected future decline given low fawn survival. That said it is expected the buck/doe ratio will decline in 2013 despite the license reduction due to the fact overall buck numbers have declined over the past several years and yearling buck recruitment will be low. Given average survival over the next year combined with the proposed hunting season, the population is expected to decline 20% to 3,100 and be at objective. Although this population has been managed toward the objective of 3,000 over the past several years, public comments indicate the Department may need to review the population objective for the herd. Field personnel have received numerous complaints over the past several years from the public concerned about the decline in antelope numbers and buck quality in the herd unit.

## Appendix I. Line Transect Summary

Survey Date: 5/21/13

Single Observer: Greg Anderson

Aircraft Contractor: Sky Aviation

Aircraft: Scout

Flight Hours: 10

Start Time: 0700

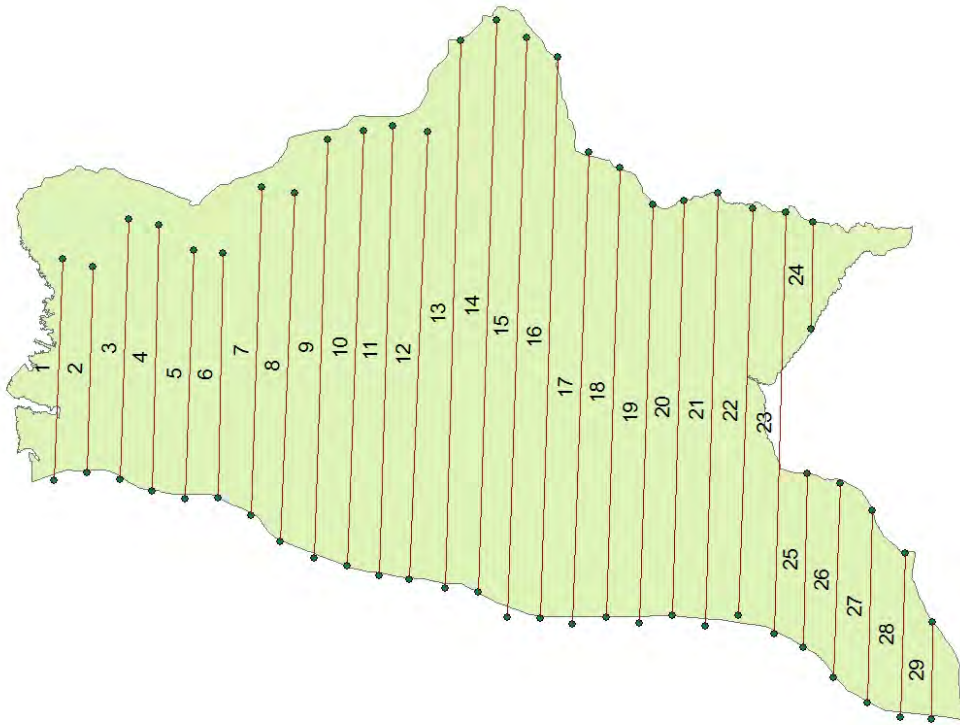
Transects (UTM Zone 13)

Transect		Northing	Easting	Meters	Miles
1	Start	4790911	245545		
	End	4809184	246275	18273	11.4
2	Start	4808530	248789		
	End	4791538	248335	16992	10.6
3	Start	4790954	251030		
	End	4812464	251804	21510	13.4
4	Start	4811999	254217		
	End	4789979	253679	22021	13.8
5	Start	4789381	256439		
	End	4809883	257117	20502	12.8
6	Start	4809646	259546		
	End	4789392	259151	20254	12.7
7	Start	4787976	261843		
	End	4815099	262748	27123	17.0
8	Start	4814653	265491		
	End	4785852	264290	28800	18.0
9	Start	4784437	267097		
	End	4819072	268246	34635	21.6
10	Start	4819763	271181		
	End	4783793	269794	35969	22.5
11	Start	4782977	272464		
	End	4820206	273566	37230	23.3
12	Start	4819681	276461		
	End	4782697	274961	36984	23.1
13	Start	4781942	277954		
	End	4827271	279254	45329	28.3
14	Start	4828925	282223		
	End	4781599	280650	47326	29.6
15	Start	4779581	283097		
	End	4827507	284670	47926	30.0

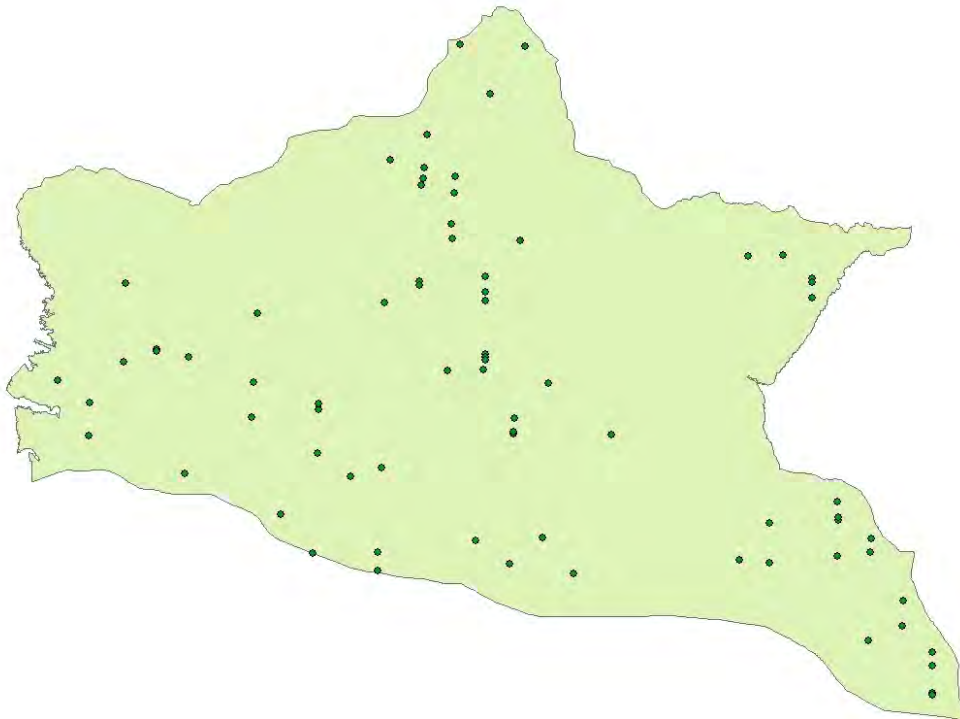


Transect		Northing	Easting	Meters	Miles
16	Start	4825843	287265		
	End	4779462	285823	46381	29.0
17	Start	4779023	288482		
	End	4817985	289843	38962	24.4
18	Start	4816707	292394		
	End	4779527	291258	37180	23.2
19	Start	4779073	293958		
	End	4813704	295090	34631	21.6
20	Start	4814025	297675		
	End	4779688	296734	34337	21.5
21	Start	4778806	299415		
	End	4814604	300518	35798	22.4
22	Start	4813369	303351		
	End	4779706	302200	33663	21.0
23	Start	4778213	305114		
	End	4812998	306080	34785	21.7
24	Start	4812224	308374		
	End	4803385	308181	8839	5.5
25	Start	4791462	307921		
	End	4777039	307561	14423	9.0
26	Start	4774608	310064		
	End	4790613	310580	16005	10.0
27	Start	4788358	313264		
	End	4772487	312855	15871	9.9
28	Start	4771298	315558		
	End	4784852	315951	13555	8.5
29	Start	4779138	318276		
	End	4771122	318155	8017	5.0
Total Length					521

## Transects



## Antelope sightings



## Survey Results

Lines: 29

Miles: 521

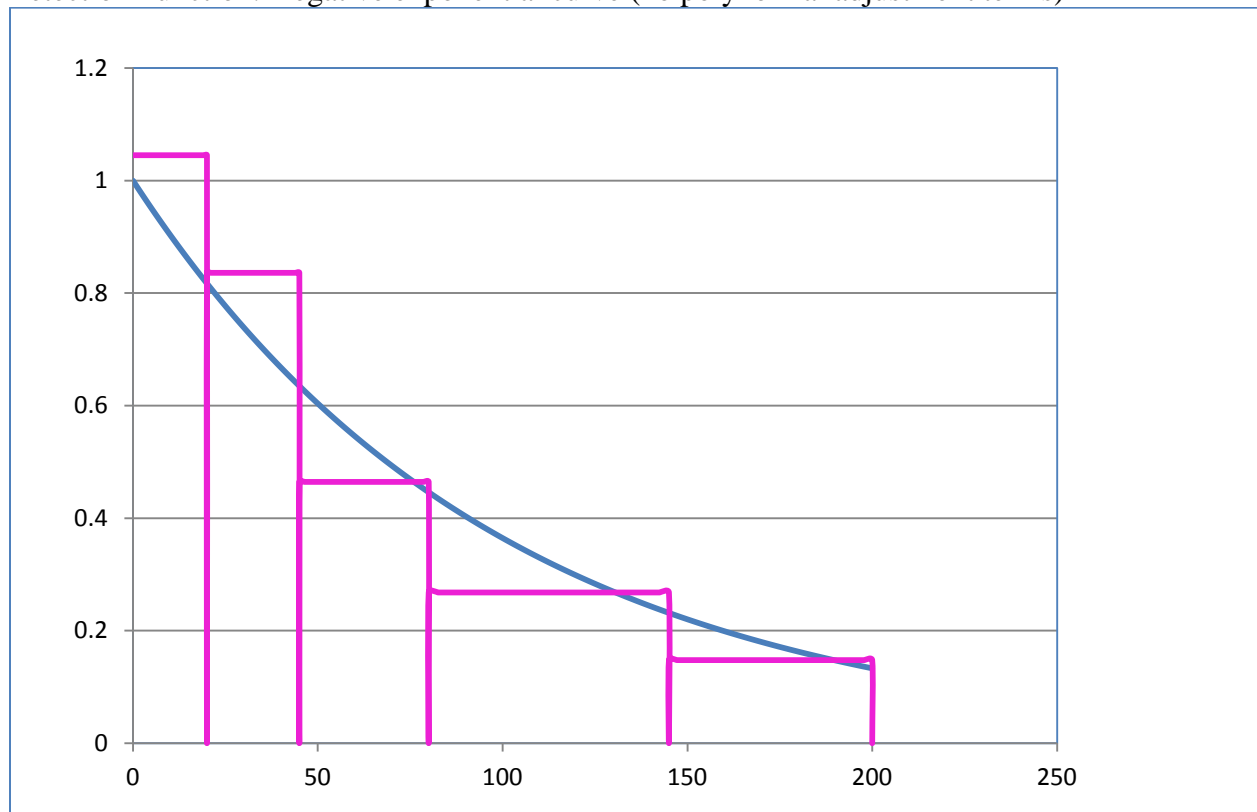
Occupied Habitat: 866 mi<sup>2</sup>

Antelope Groups:

Band	Groups
A	17
B	18
C	14
D	15
E	11
Total	75

Average Group Size: 2.0

Detection Function: negative exponential curve (no polynomial adjustment terms)



Model Negative Exponential  $k(y) = \text{Exp}(-y/A(1))$

Parameter	Estimate	Standard Error	Coefficient of Variation	95% CI	
				Upper	Lower
Density	2.6	0.61	22.9	1.7	4.2
Population	2303	527	22.9	1471	3605

INPUT		
Species:	Pronghorn	
Biologist:	Greg Anderson	
Herd Unit & No.:	Badwater	
Model date:	06/05/13	

☐ Clear form

MODELS SUMMARY			
	Fit	Relative AICc	Check best model to create report
CJ,CA	78	87	<input type="checkbox"/> CJ,CA Model
SCJ,SCA	88	100	<input checked="" type="checkbox"/> SCJ,SCA Mod
TSJ,CA	61	162	<input type="checkbox"/> TSJ,CA Model
Notes			

Population Estimates from Top Model															
Year	Predicted Prehunt Population (year <i>i</i> )			Total	Predicted Posthunt Population (year <i>i</i> )			Total	Predicted adult End-of-bio-year Pop (year <i>i</i> )			LT Population Estimate		Trend Count	Objective
	Juveniles	Total Males	Females		Juveniles	Total Males	Females		Total Males	Females	Total Adults	Field Est	Field SE		
1993	817	1018	1455	3290	769	562	1124	2454	751	1250	2001				3000
1994	650	736	1225	2611	633	384	989	2006	557	1091	1648				3000
1995	680	546	1070	2296	657	299	943	1900	514	1082	1595				3000
1996	969	503	1060	2532	969	312	1052	2333	678	1339	2017				3000
1997	730	664	1312	2706	730	442	1297	2468	673	1436	2109				3000
1998	928	660	1407	2995	924	467	1407	2799	789	1621	2411				3000
1999	1103	774	1589	3465	1103	604	1580	3287	992	1849	2841				3000
2000	969	972	1812	3753	969	790	1809	3568	1086	1983	3070	3090	751		3000
2001	850	1065	1944	3859	850	882	1940	3673	1110	2041	3151	2766	586		3000
2002	924	1088	2000	4012	924	907	1990	3821	1166	2116	3281				3000
2003	1116	1142	2073	4332	1116	937	2073	4127	1275	2277	3552				3000
2004	1571	1249	2231	5051	1571	1053	2227	4851	1584	2615	4200	3760	796		3000
2005	1799	1553	2563	5915	1797	1273	2494	5564	1861	2935	4796				3000
2006	1492	1824	2876	6192	1487	1481	2699	5667	1884	2949	4834				3000
2007	1821	1847	2890	6558	1806	1483	2662	5950	2028	3054	5082	2764	507		3000
2008	1531	1988	2993	6512	1518	1599	2764	5882	1991	3010	5001				3000
2009	1384	1952	2950	6285	1367	1550	2704	5621	1878	2886	4764				3000
2010	1526	1840	2828	6195	1514	1364	2566	5443	1385	2444	3829	5256	931		3000
2011	1152	1357	2395	4904	1116	840	2077	4033	1216	2296	3512				3000
2012	1209	1191	2250	4650	1195	733	1985	3912	868	1937	2804	2303	527		3000
2013	999	850	1898	3747	982	465	1678	3126							3000
2014															
2015															
2016															
2017															
2018															
2019															
2020															
2021															
2022															
2023															
2024															
2025															

Survival and Initial Population Estimates

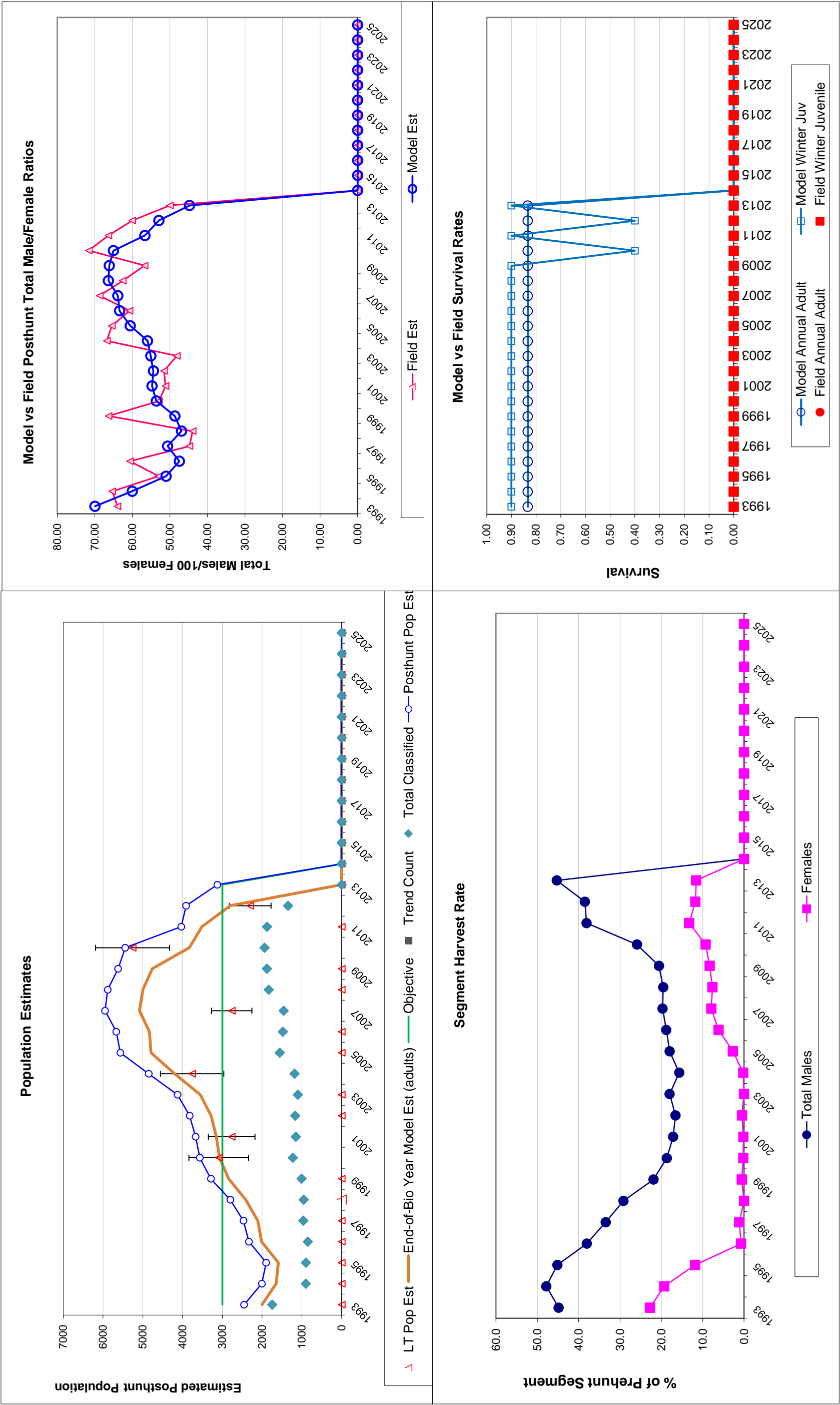
Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates	
	Model Est	Field Est	Model Est	Field Est
1993	0.90		0.83	
1994	0.90		0.83	
1995	0.90		0.83	
1996	0.90		0.83	
1997	0.90		0.83	
1998	0.90		0.83	
1999	0.90		0.83	
2000	0.90		0.83	
2001	0.90		0.83	
2002	0.90		0.83	
2003	0.90		0.83	
2004	0.90		0.83	
2005	0.90		0.83	
2006	0.90		0.83	
2007	0.90		0.83	
2008	0.90		0.83	
2009	0.90		0.83	
2010	0.40		0.83	
2011	0.90		0.83	
2012	0.40		0.83	
2013	0.90		0.83	
2014				
2015				
2016				
2017				
2018				
2019				
2020				
2021				
2022				
2023				
2024				
2025				

Parameters:		Optim cells
Juvenile Survival =		0.900
Adult Survival =		0.834
Initial Total Male Pop/10,000 =		0.102
Initial Female Pop/10,000 =		0.145

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Classification Counts												Harvest	
Year	Juvenile/Female Ratio			Total Male/Female Ratio			Harvest						
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	Total Harvest	Total Males	Females	
1993		56.17	3.32	69.98	63.98	3.64	44	415	301	760	44.8	22.8	
1994		53.03	4.43	60.05	65.38	5.12	15	320	215	550	47.8	19.3	
1995		63.61	5.01	51.03	53.01	4.42	21	224	115	360	45.1	11.8	
1996		91.42	7.20	47.49	60.65	5.37	0	174	7	181	38.0	0.7	
1997		55.60	4.24	50.63	44.81	3.67	0	202	14	216	33.4	1.2	
1998		65.93	4.90	46.91	43.96	3.73	3	175	0	178	29.2	0.0	
1999		69.39	5.24	48.69	66.36	5.08	0	154	8	162	21.9	0.6	
2000		53.45	3.71	53.63	52.94	3.69	0	165	3	168	18.7	0.2	
2001		43.75	3.26	54.78	51.18	3.62	0	166	3	169	17.2	0.2	
2002		46.19	3.38	54.39	51.61	3.64	0	164	9	173	16.6	0.5	
2003		53.85	3.90	55.09	48.17	3.62	0	187	0	187	18.0	0.0	
2004		70.40	4.90	55.99	66.80	4.72	0	178	4	182	15.7	0.2	
2005		70.20	4.25	60.58	65.51	4.05	2	254	63	319	18.0	2.7	
2006		51.87	3.36	63.41	60.78	3.75	4	312	161	477	18.8	6.2	
2007		63.02	4.04	63.89	68.73	4.29	14	331	208	553	19.7	7.9	
2008		51.17	3.00	66.41	62.59	3.44	12	353	208	573	19.5	7.6	
2009		46.91	2.73	66.17	56.77	3.11	15	365	223	603	20.6	8.3	
2010		53.95	3.11	65.06	71.63	3.78	11	433	239	683	25.9	9.3	
2011		48.11	2.85	56.68	66.40	3.55	33	470	289	792	38.1	13.3	
2012		53.72	3.62	52.95	60.06	3.90	13	417	241	671	38.5	11.8	
2013		52.63	3.15	44.80	50.00	3.63	15	350	200	565	45.3	11.6	
2014													
2015													
2016													
2017													
2018													
2019													
2020													
2021													
2022													
2023													
2024													
2025													

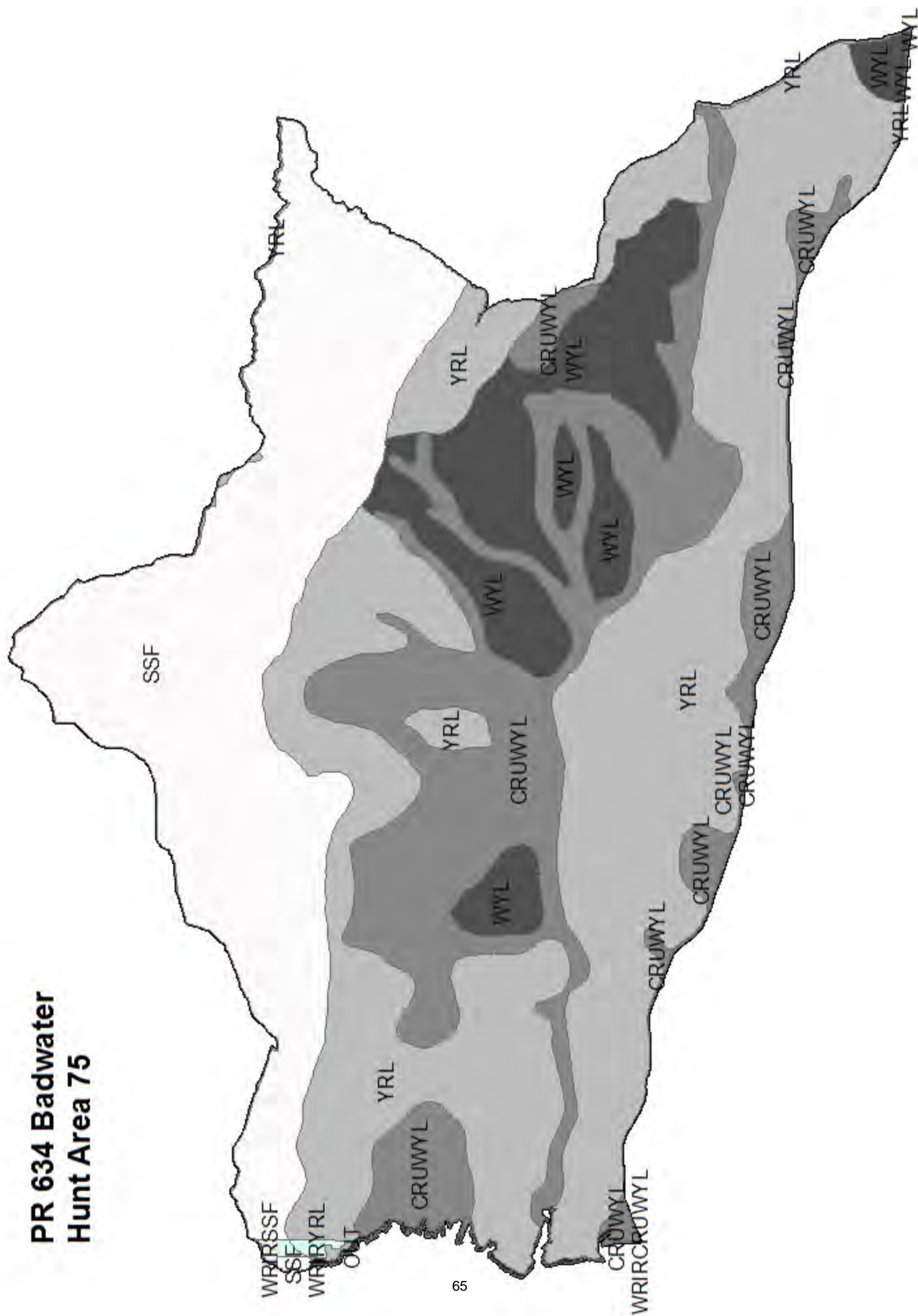
FIGURES



Comments:



# PR 634 Badwater Hunt Area 75





## 2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR635 - PROJECT

HUNT AREAS: 97, 117

PREPARED BY: GREG  
ANDERSON

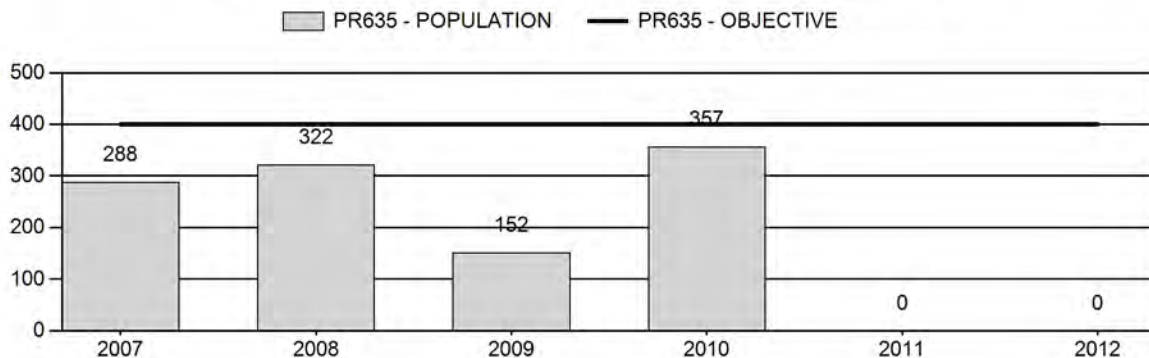
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	224	N/A	N/A
Harvest:	325	590	550
Hunters:	283	468	500
Hunter Success:	115%	126%	110%
Active Licenses:	368	615	600
Active License Percent:	88%	96%	92%
Recreation Days:	1,052	1,800	1,700
Days Per Animal:	3.2	3.1	3.1
Males per 100 Females	55	89	
Juveniles per 100 Females	62	43	

Population Objective:	400
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	0
Model Date:	None

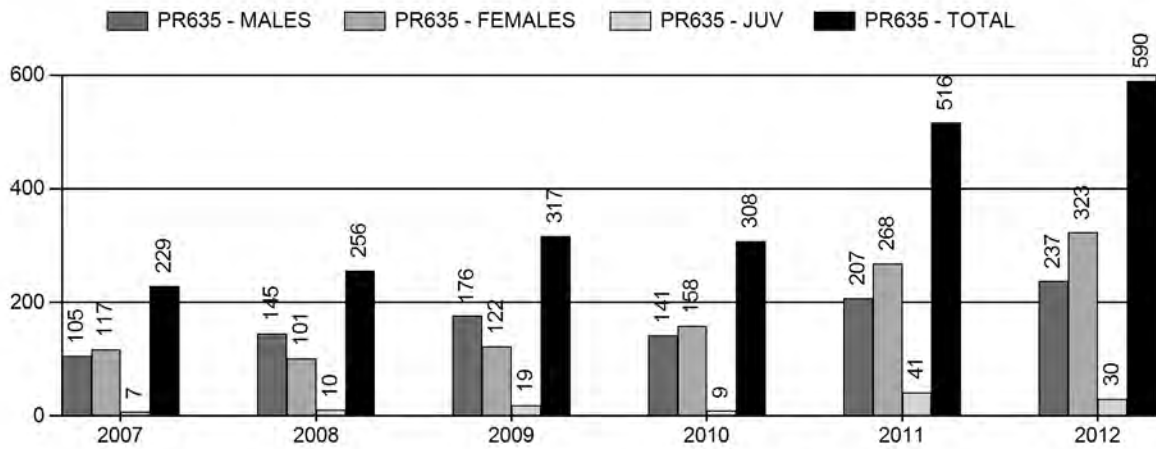
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	0%	0%
Males $\geq$ 1 year old:	0%	0%
Juveniles (< 1 year old):	0%	0%
Total:	0%	0%
Proposed change in post-season population:	0%	0%

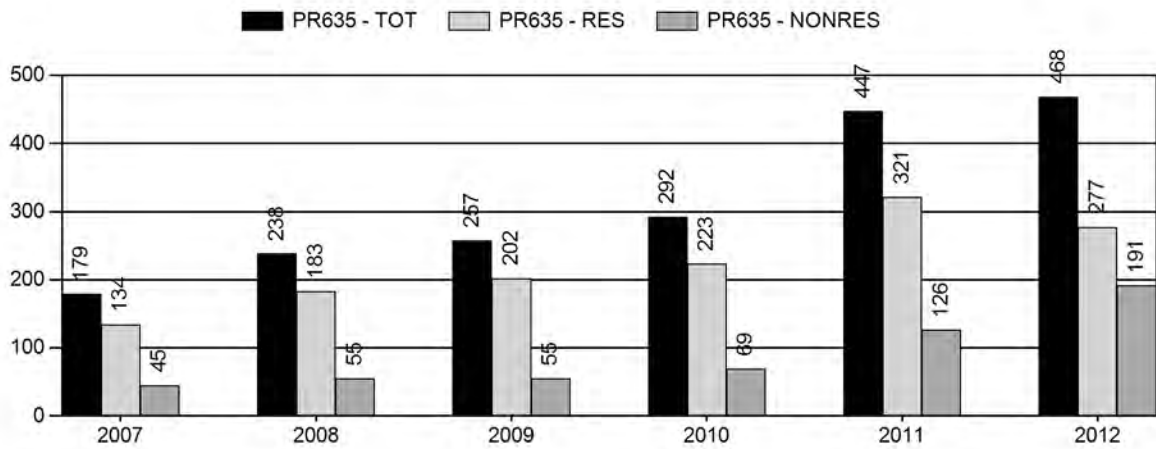
## Population Size - Postseason



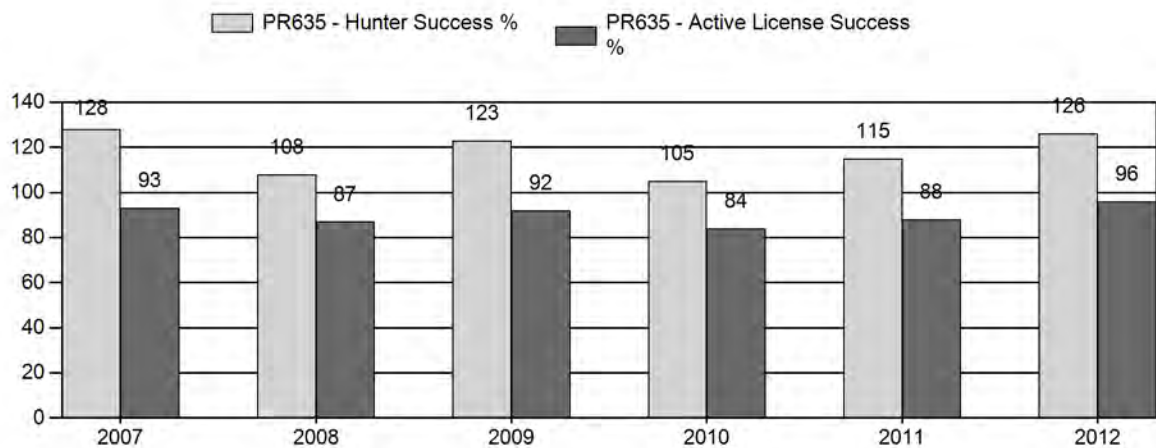
## Harvest



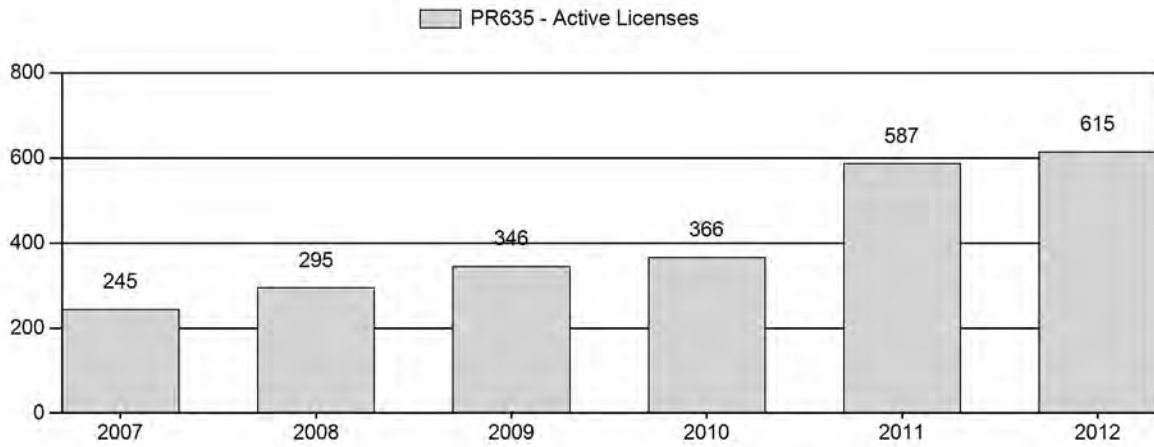
## Number of Hunters



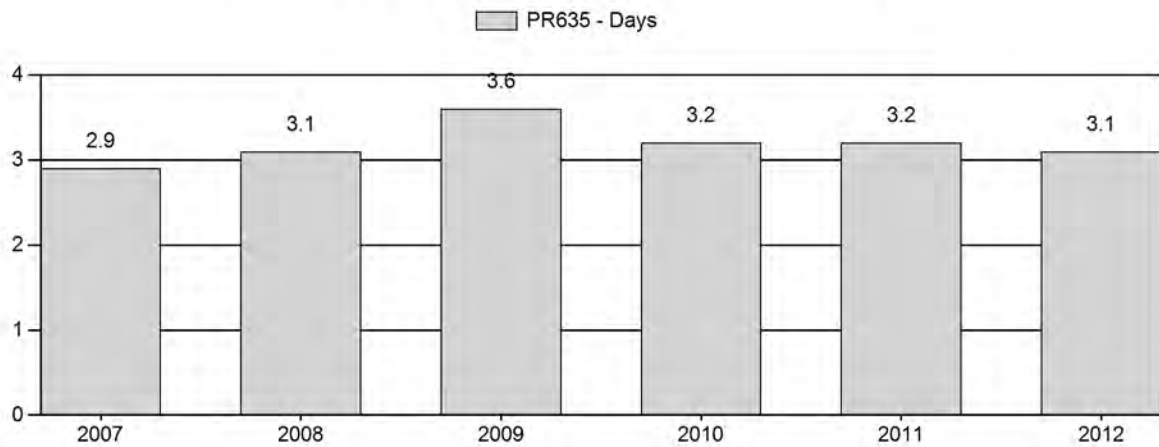
## Harvest Success



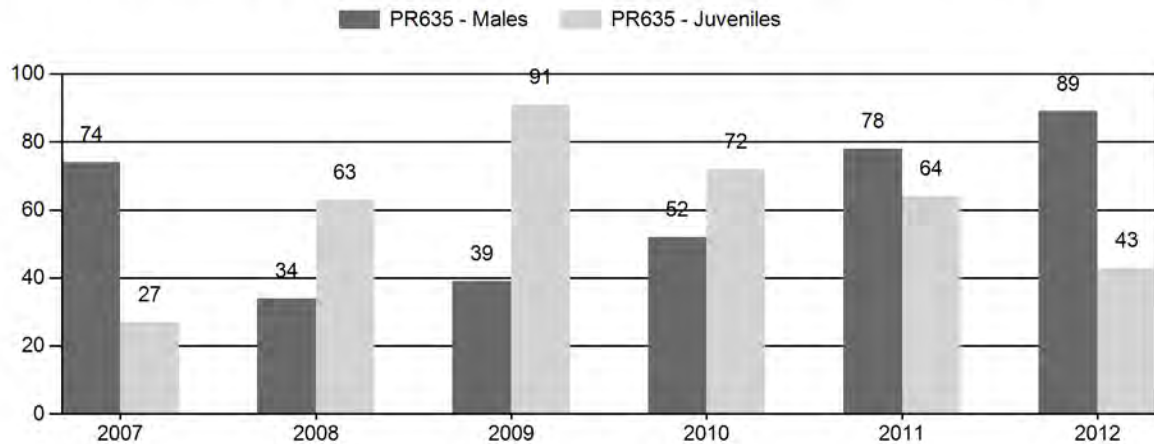
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



## 2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR635 - PROJECT

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	502	0	0	148	37%	200	50%	54	13%	402	426	0	0	74	± 0	27	± 0	16
2008	563	0	0	78	17%	229	51%	144	32%	451	450	0	0	34	± 0	63	± 0	47
2009	429	0	0	58	17%	149	43%	136	40%	343	391	0	0	39	± 0	91	± 0	66
2010	634	0	0	118	23%	226	45%	163	32%	507	524	0	0	52	± 0	72	± 0	47
2011	0	45	89	134	32%	171	41%	109	26%	414	0	26	52	78	± 0	64	± 0	36
2012	0	67	112	179	38%	202	43%	86	18%	467	0	33	55	89	± 0	43	± 0	23

**2013 SEASONS  
PROJECT PRONGHORN (PR 635)**

Hunt Area	Type	Season Dates Opens	Closes	Quota	Limitations
97, 117	1	Sep. 21	Oct. 22	250	Limited quota licenses; any antelope
	2	Aug. 15	Oct. 22	100	Limited quota licenses; any antelope valid in that portion of Area 97 south of U.S. Highway 26 and in all of Area 117
	6	Sep. 21	Oct. 22	150	Limited quota licenses; doe or fawn
	7	Aug. 15	Oct. 22	150	Limited quota licenses; doe or fawn valid in that portion of Area 97 south of U.S. Highway 26 and in all of Area 117
Archery 97, 117		Aug. 15	Sep. 14		Refer to section 3 of this chapter

Hunt Area	Type	Quota change from 2012
97, 117	2	+100
	6	-150
	7	+50
<b>Total</b>	<b>2</b>	<b>+100</b>
	<b>6</b>	<b>-150</b>
	<b>7</b>	<b>+50</b>

**Management Evaluation**

**Current Management Objective: 400**

**Management Strategy: Recreational**

**2012 Postseason Population Estimate: unknown**

**2013 Proposed Postseason Population Estimate: unknown**

## **Management Issues**

The Project pronghorn herd has a population objective of 400 with a recreational management strategy. The objective has been in place since 1994. Despite having a numerical objective for decades, it has never been possible to effectively estimate this population due to significant interchange with the Wind River Reservation (WRR) along the northern border of hunt area 97 and the inability to effectively collect demographic data throughout hunt area 117. Over the years, personnel have managed the population in response to damage claims by landowners and to provide quality recreational opportunities in the publicly accessible portions of hunt area 97. The Lander Region is in the process of developing an alternative objective for this herd in an attempt to provide more consistent management year-to-year.

## **Habitat/Weather**

This herd occupies a heavily agricultural area in central Wyoming as well as lands interspersed with the WRR. Land ownership patterns and extensive border with the WRR make it cost prohibitive to collect adequate demographic data in the herd unit. The highest densities of pronghorn are found along the northern portion of hunt area 97 and commonly move between the herd unit and the WRR. Extensive agriculture in the area results in a more stable feed resource for pronghorn in this herd unit compared to neighboring populations. Drought conditions were extreme throughout the region in 2012 but adult pronghorn in this population were not severely impacted due to feed availability. That said, the population does appear to have declined over the past couple years in conjunction with liberal seasons aimed at reducing pronghorn numbers.

## **Field/Harvest Data/Population**

Due to extensive interchange with the WRR it has not been possible to construct a reliable population model for this herd unit. Fawn recruitment was quite low in 2012 with a fawn/doe ratio of 43/100. Despite the belief this population is somewhat buffered from drought conditions with the presence of irrigated, agricultural feed resources the extreme drought of 2012 may be manifested in the low fawn/doe ratio. It is likely pronghorn from the WRR moved into the herd unit toward the end of summer as drought conditions worsened. These pronghorn would have had extremely poor feed in early summer and their immigration may account for the low fawn/doe ratio in the herd. Given the low recruitment, the population is expected to decline over the coming year. Conversely, the buck/doe ratio was quite high at 89/100. The buck/doe ratio has been very high over the past 2 years. The high ratios coincide with a change in survey methodology in the area. Prior to 2011, personnel conducted an aerial survey encompassing primarily dry, uplands managed by the Bureau of Reclamation with unrestricted hunting access. The buck/doe ratio in this area was 34/100, 39/100, and 52/100 in 2008, 2009, and 2010 respectively. In 2011, personnel began conducting ground classifications along routes that included a number of agricultural fields to the west of the previously surveyed area. The immediate, large increase in the buck/doe ratio associated with the survey change is indicative of variable buck distribution throughout the herd unit. Much of the newly surveyed area has far more restricted hunting access and a high buck/doe ratio for the overall herd unit but a low buck/doe ratio in areas easily accessible to hunters could present future management challenges.

Harvest success on Type 1 licenses in area 97 where the bulk of harvest occurs within the herd unit was 98% in 2012. This was higher than each of the last several years and indicates hunters

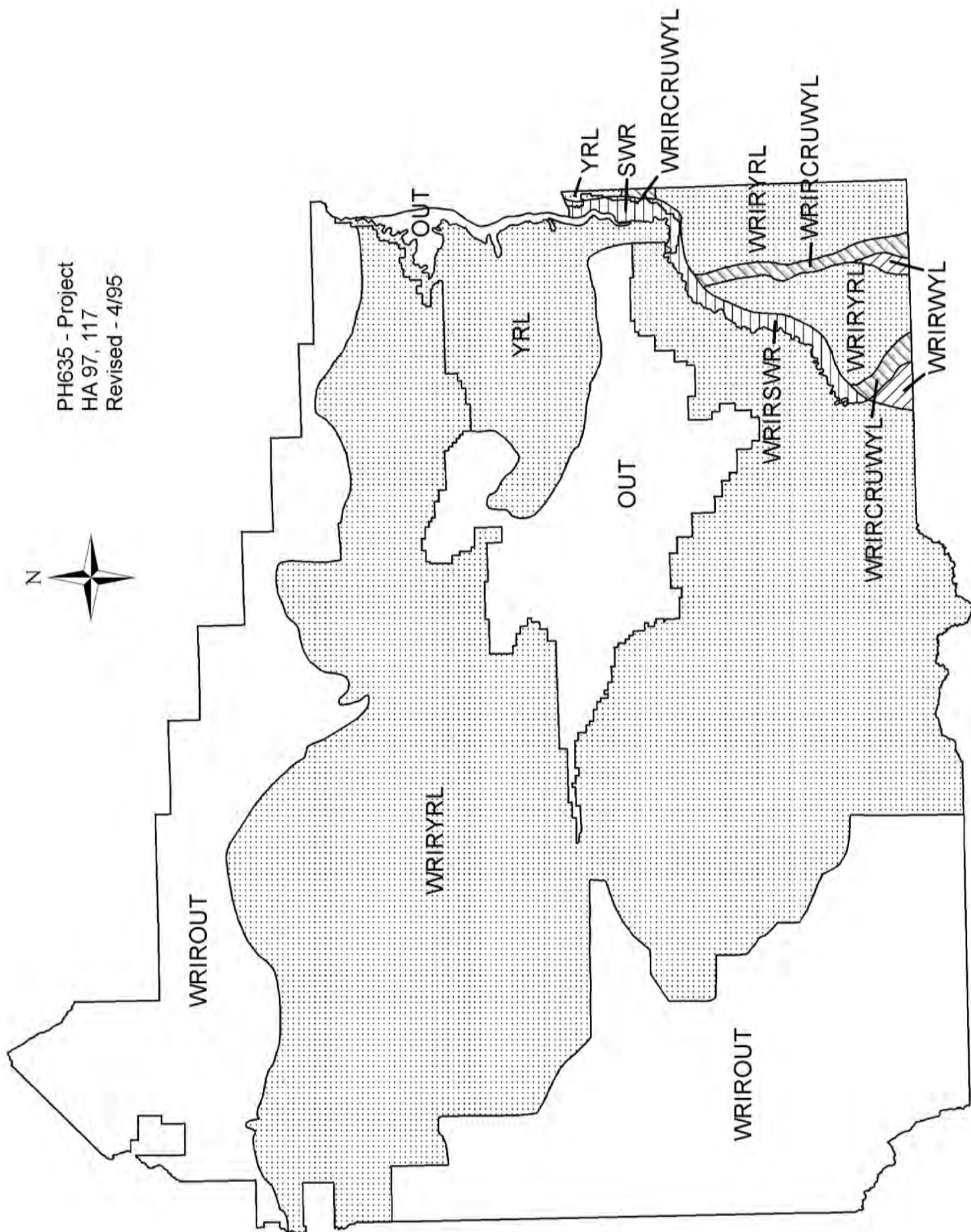


currently have access to areas with bucks regardless of animal distribution. The days/animal statistic was 3.0 in 2012 and is unremarkable compared to past years with no trend evident.

### **Management Summary**

For several consecutive years, seasons in this herd unit included increasing numbers of doe/fawn licenses with the intent of curbing growth. Based on landowner comments and personnel perceptions it appears the population has stabilized or declined slightly over the past year. Given the low fawn recruitment in 2012, it is expected the population may decline further in 2013. The 2013 hunting season is designed to decrease harvest pressure on does while maintaining recreational opportunity given the high buck/doe ratio in the herd. While reducing harvest pressure on does throughout most of the herd unit with decreased Type 6 licenses, localized damage problems necessitate the addition of 50 Type 7 licenses. Personnel have also noticed increased buck numbers at sites with damage problems. To address unreasonably high buck numbers at sites targeted with Type 7 licenses, a new Type 2 license will be issued in 2013 to afford hunters the opportunity to harvest bucks.

PH635 - Project  
HA 97, 117  
Revised - 4/95



## 2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR636 - NORTH FERRIS

HUNT AREAS: 63

PREPARED BY: GREG HIATT

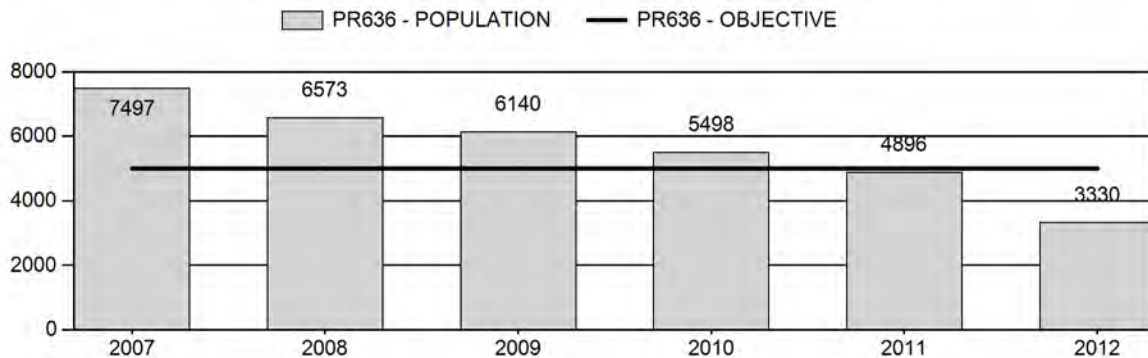
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	6,121	3,330	3,388
Harvest:	649	760	285
Hunters:	689	788	320
Hunter Success:	94%	96%	89 %
Active Licenses:	735	885	320
Active License Percent:	88%	86%	89 %
Recreation Days:	1,986	2,415	850
Days Per Animal:	3.1	3.2	3.0
Males per 100 Females	71	58	
Juveniles per 100 Females	59	39	

Population Objective: 5,000  
 Management Strategy: Recreational  
 Percent population is above (+) or below (-) objective: -33.4%  
 Number of years population has been + or - objective in recent trend: 2  
 Model Date: 03/10/2013

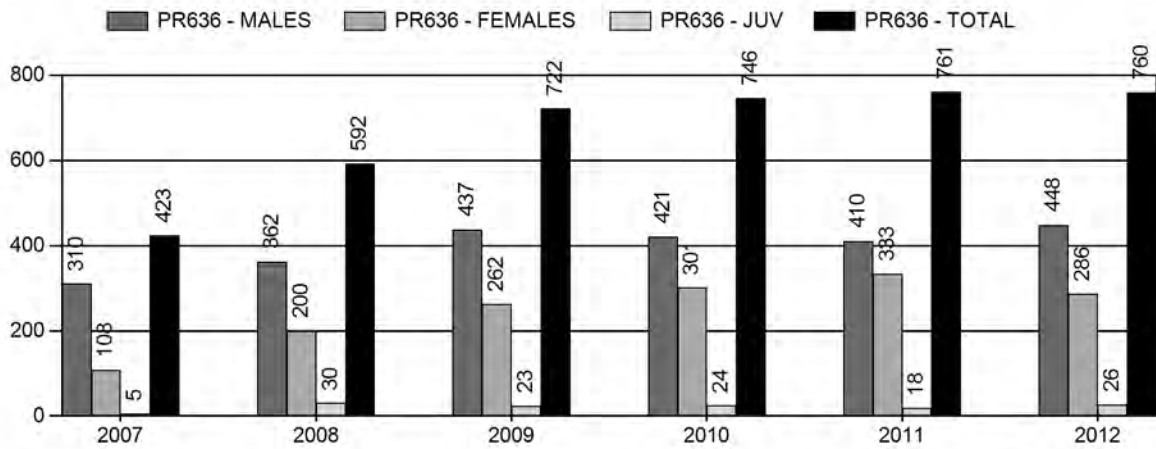
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	9.1%	2.2%
Males $\geq$ 1 year old:	21.3%	26.1%
Juveniles (< 1 year old):	1.3%	0.5%
Total:	10.66%	7.7%
Proposed change in post-season population:	-2.0%	+1.7%

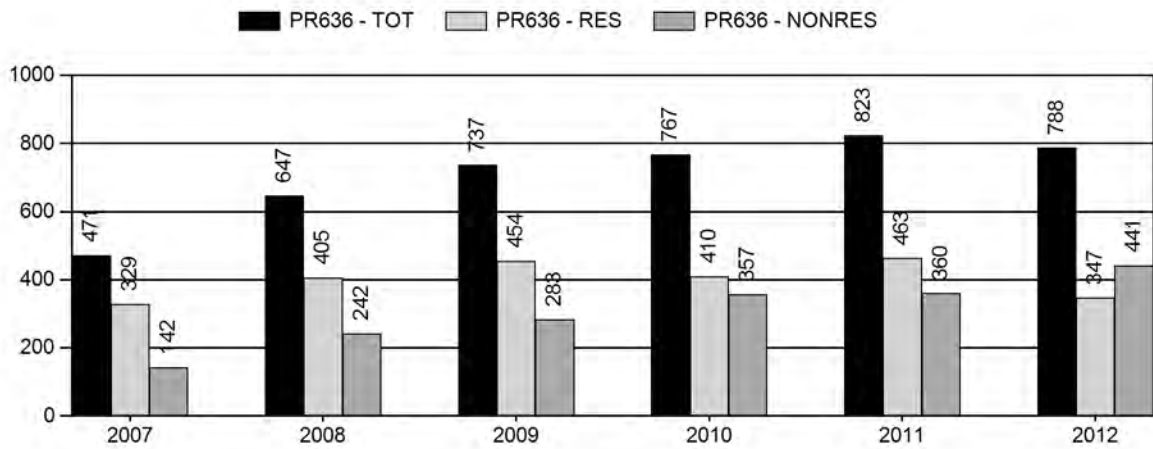
## Population Size - Postseason



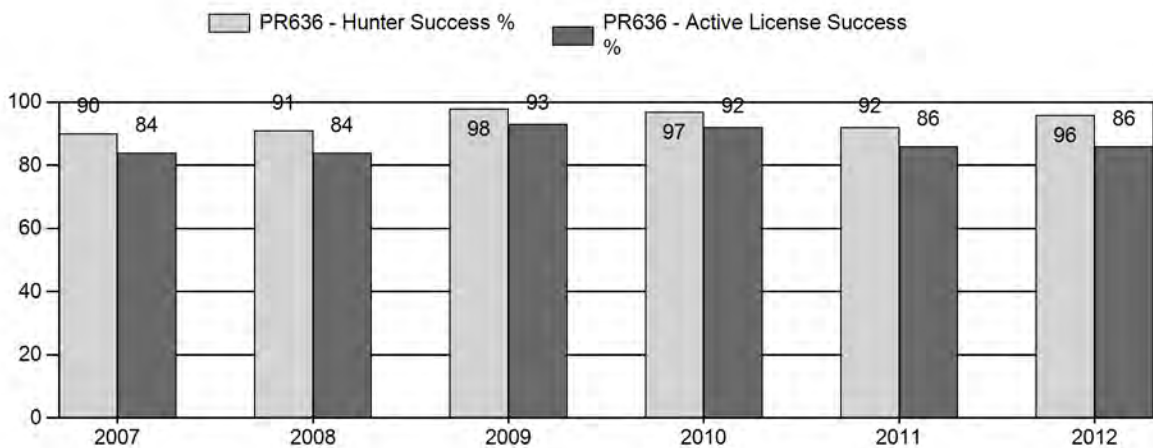
## Harvest



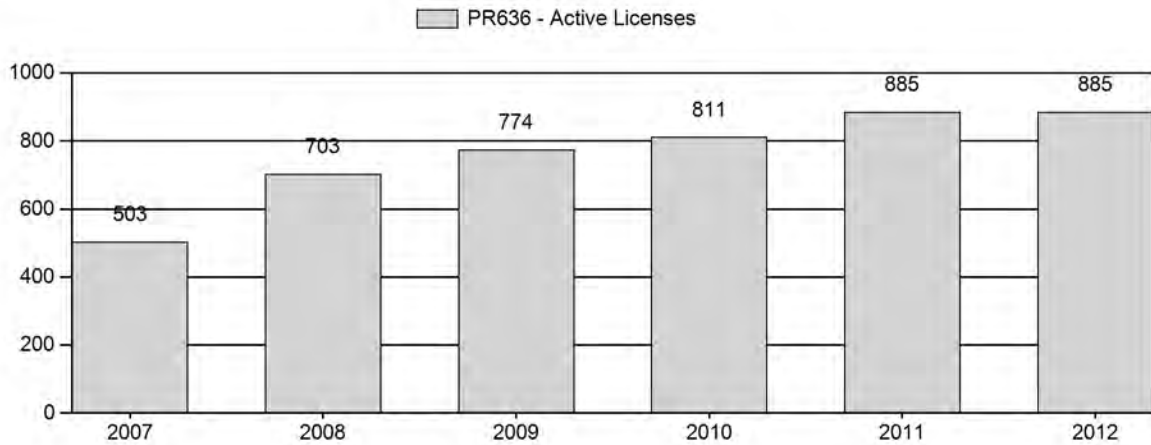
## Number of Hunters



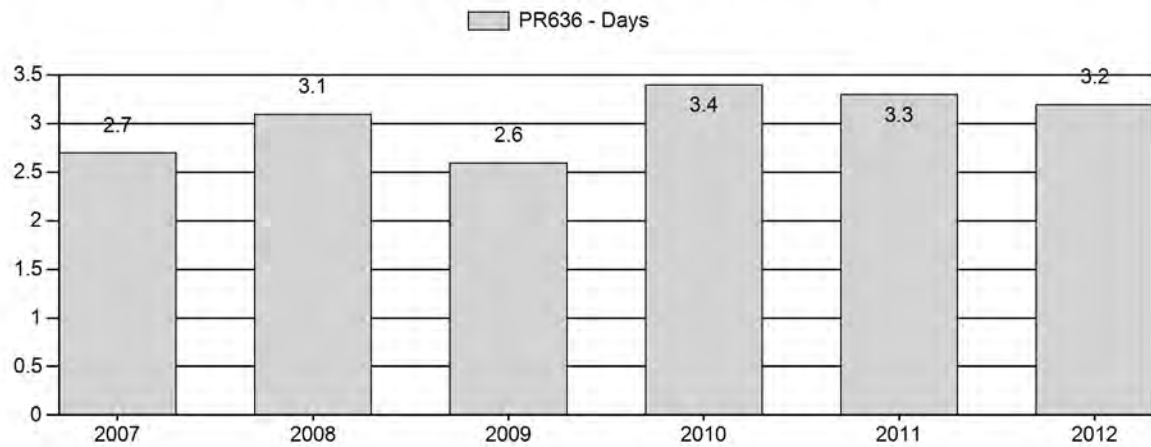
## Harvest Success



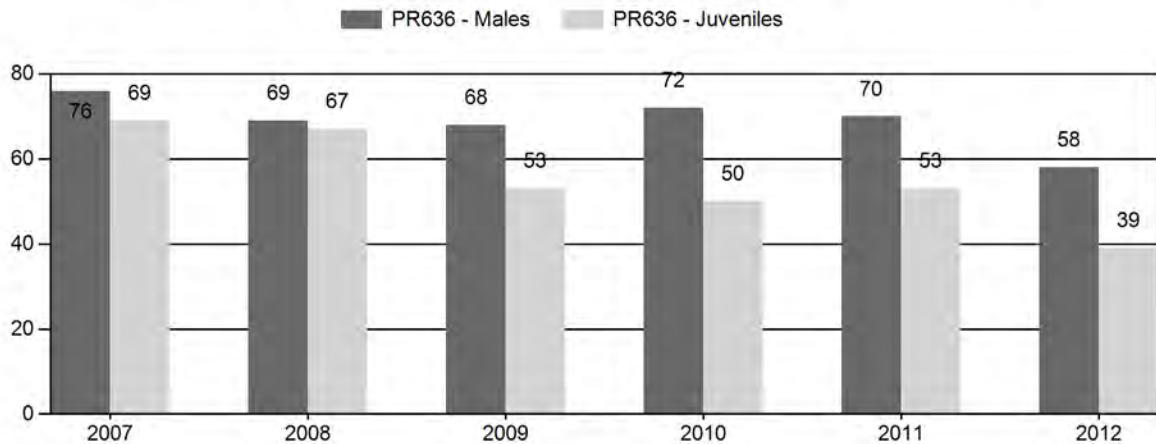
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



## 2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR636 - NORTH FERRIS

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	7,962	200	371	571	31%	751	41%	520	28%	1,842	2,455	27	49	76	± 6	69	± 5	39
2008	7,224	166	370	536	29%	775	42%	522	28%	1,833	2,190	21	48	69	± 6	67	± 5	40
2009	6,935	240	573	813	31%	1,192	45%	627	24%	2,632	2,040	20	48	68	± 4	53	± 3	31
2010	6,318	99	274	373	32%	519	45%	257	22%	1,149	2,145	19	53	72	± 7	50	± 6	29
2011	5,733	72	288	360	31%	516	45%	275	24%	1,151	0	14	56	70	± 7	53	± 6	31
2012	4,158	55	253	308	29%	534	51%	208	20%	1,050	0	10	47	58	± 6	39	± 5	25

**2013 HUNTING SEASONS  
NORTH FERRIS PRONGHORN HERD (PR636)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
63	1	Sep. 17	Oct. 31	100	Limited quota; any antelope
	2	Sep. 17	Oct. 31	200	Limited quota; any antelope valid in that portion of Area 63 east of the Buzzard Road (Natrona County Road 410 – Carbon County Road 497)
	6	Sep. 17	Oct. 31	25	Limited quota; doe or fawn
	7	Sep. 17	Oct. 31	25	Limited quota; doe or fawn valid in that portion of Area 63 east of the Buzzard Road (Natrona County Road 410 – Carbon County Road 497)
Archery					
63		Aug. 15	Sep. 16		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
63	1	-300
	2	0
	6	-75
	7	-275
<b>Total</b>	<b>1 &amp; 2</b>	<b>-300</b>
	<b>6 &amp; 7</b>	<b>-350</b>

**Management Evaluation**

**Current Management Objective: 5,000**

**Management Strategy: Recreation**

**2012 Postseason Population Estimate: ~3,350**

**2013 Proposed Postseason Population Estimate: ~3,400**

The North Ferris pronghorn herd is managed toward a post-hunt population of 5,000, an objective last publicly reviewed in 1994. Population size is estimated using a spreadsheet model developed in 2012 and updated in 2013. The herd is in recreational management, with harvest quotas designed to maintain pre-hunt buck:doe ratios below 60:100.

**Herd Unit Issues**

Historically, access has not been an issue in this herd unit which is mostly public lands, but access to some blocks of private land has become more difficult in recent years and may affect management ability to attain adequate harvests in the future. Potential for economic wind power exists within the herd unit, but appears unlikely when other resource issues such as T&E species and sage-grouse Core are considered. Many miles of sheep-tight fences still stand in the herd unit, impeding pronghorn movements.

## **Weather**

Drought conditions were extreme in 2012, with minimal snowfall during the 2011-12 winter and almost no precipitation throughout the spring and summer. Drought was classified as moderate in April, severe in May and then extreme for all subsequent months through February 2013. As a consequence, fawn production was quite low, at 39:100, the lowest ratio in 19 years. The combination of continued heavy doe/fawn harvest and extremely poor fawn production in 2012 significantly reduced herd size this year, estimated at just over 3,300. This is the lowest this herd has been in at least 20 years.

## **Habitat**

While no herbaceous habitat transects are established within this herd unit, herbaceous forage production is expected to have been minimal due to record drought. Two shrub transect have been established within this herd unit, primarily to monitor mule deer winter forage. One of these, on the Morgan Creek WHMA, was burned in the 2012 fires and the second was not read in 2012. New owners of the Pathfinder Ranch, which encompasses the north-central portion of this herd, have expressed interest in looking for opportunities for improving habitat conditions for wildlife, possibly as mitigation for wind power projects in other parts of the state. Habitat issues that would benefit pronghorn include treatment of winter ranges, adjustments of grazing use, and modification of sheep-tight fences.

## **Field Data**

Classification sample size declined again for the third year, was the smallest sample in over 18 years, and was less than half the sample of 2009. These data are collected from the ground along routes that have had only minor changes over the past two decades, and again found significantly higher densities of pronghorn in the eastern half of the area near Pathfinder Reservoir and along irrigated hayfields on the Buzzard and Sand Creek Ranches. Fawn production declined to its lowest level in 19 years, a direct result of the exceptionally dry spring and summer.

Following unusually high recruitment of yearlings in 2005, buck:doe ratios exceeded the 60:100 maximum criterion for recreational management in this herd. Buck harvests were increased for the following seven years, often double or triple historic levels, and surplus bucks were successfully harvested prior to 2012 when the buck:doe ratio returned to an acceptable 58:100. Much of this decline was in the supply of adult bucks, with that ratio dropping to its lowest level in seven years. Quotas for “any antelope” licenses were still 3 times historic levels in 2012 after the excess bucks had been removed from the herd and total pronghorn numbers were below objective. As expected, hunter complaints about poor quality of bucks were common and the buck:doe ratio is expected to continue to decline in 2013.



## **Harvest Data**

Success for hunters with Type 1 licenses dropped to its lowest level in 10 years, at just 81 percent, a consequence of both reduced numbers of pronghorn and the lowered buck:doe ratio. Hunters with Type 2 licenses fared better, at 92 percent, presumably because they were forced to hunt where pronghorn densities were higher, but also because 73 percent of these licenses went to nonresidents, who typically have higher success. Doe/fawn hunters had the second poorest success since doe/fawn licenses were reintroduced in this herd in 2006, again a result of fewer pronghorn in the herd, but success was similar between the Type 6 and Type 7 licenses. Field contacts suggest a fair proportion of hunters with the Type 6 tags also used them in the eastern portion of the area.

## **Population**

This herd was below objective size for most of the decade following the 1992-93 winter, occasionally by as much as 20 percent or more, a consequence of low fawn production and poor recruitment. High fawn production followed by an unusually mild winter in 2004 provided the first significant growth in herd size.

Prior to the development of a reasonable spreadsheet model in mid-2012, population estimates suggested this herd was well above objective size from 2006 up until 2012, and harvests were increased accordingly. The 2012 spreadsheet model showed a similar growth above objective in 2006, but predicts the increased harvests successfully reduced the herd to within 10 percent of objective by 2010 and slightly below objective following the 2011 hunt.

The Time-Specific Juvenile & Constant Adult Survival (TSJ,CAS) spreadsheet model provided the best fit with observed buck:doe ratios for this herd, particularly for the most recent six years. The model behaved well when 2012 classification and harvest data were added and is considered a “Fair” model of the herd. Annual adult survival was predicted at 79 percent, a level slightly lower than models for some nearby pronghorn herds. Juvenile survival rates fluctuated within the allowed range but frequently hovered at maximum or minimum allowed values. The CJ,CA and SCJ,SCA models each had lower AIC values, but both models predicted herd sizes greatly exceeding past trend counts, without following count trends, and generated roughly stable buck:doe estimates that did not follow dips and rises in observed values. Estimated buck:doe ratios of these two models approximated observed values in only four or five of the past 20 years.

Due to the poor condition of animals going into this winter and projections of continued drought in 2013, fawn production in 2013 was projected to be similar to that seen in 2012. Similarly, the model was run using low juvenile survival in 2013. A line transect survey scheduled for spring of 2013 should provide an independent estimate to evaluate the spreadsheet model predictions and winter survival.

## **Management Summary**

With the population estimated to be 33% below objective, harvests need to be reduced to allow the herd to recover. The 2013 quota for Type 1 licenses, most of which are expected to be filled

on public lands in the western portion of the area, is reduced by 75 percent. A similar reduction is not recommended for the Type 2 licenses. These are limited to the eastern portion of the herd where most private lands are found, where pronghorn densities have been highest close to Pathfinder Reservoir and on irrigated hayfields, and which only represented 1/3<sup>rd</sup> of the “any antelope” quota in 2012. Quotas for both the Type 6 and Type 7 doe/fawn licenses are reduced to minimal numbers, intended to maximize herd recovery while providing reasonable chance of success for hunters applying for such tags.

The expected harvest of roughly 240 bucks and 45 does and fawns from the 2013 license quotas should provide only a minimal increase (~2 percent) in herd size, projected to be ~3,400 at post-hunt 2013. This assumes reduced survival through the 2012-13 winter and fawn production similar to the low level seen in 2012. If either winter survival or fawn production exceeds expectations in 2013, the increase would be improved, but this herd is unlikely to reach objective size for several years without significant improvement in fawn production and survival.

Opening date falls on the traditional day of the week, is compatible with the application booklet and, as intended when first selected years ago, reduces crowding on opening day and the following weekend. The closing date is the same as in 2012 and extends to the closing of the local deer season. Archery season uses a standardized opening date and closes the day before the opening of the regular season.

A review of the management objectives for this herd is scheduled for late 2013, following results of the line transect survey planned for spring 2013.

INPUT	
Species:	Pronghorn
Biologist:	Greg Hiatt
Herd Unit & No.:	North Ferris 636
Model date:	03/10/13

☐ Clear form

MODELS SUMMARY				Notes
			Relative AICc	
			Fit	
CJ,CA	Constant Juvenile & Adult Survival		98	
SCJ,SCA	Semi-Constant Juvenile & Semi-Constant Adult Survival		75	
TSJ,CA	Time-Specific Juvenile & Constant Adult Survival		32	

Population Estimates from Top Model											
Year	Predicted Prehunt Population (year /)		Total	Predicted Posthunt Population (year /)		Total	Predicted adult End-of-bio-year Pop (year /)		LT Population Estimate	Trend Count	Objective
	Juveniles	Total Males	Females	Juveniles	Total Males	Females	Total Males	Females	Field Est	Field SE	
1993	754	1315	2814	754	1115	2811	1206	2621	3827		5000
1994	1173	1182	2569	1173	998	2564	1308	2613	3921		5000
1995	1171	1282	2561	1171	1090	2553	1380	2602	3982		5000
1996	1709	1352	2550	1709	1172	2550	1373	2527	3900		5000
1997	1204	1346	2476	1204	1159	2473	1205	2308	3513		5000
1998	1538	1181	2262	1538	909	2257	1070	2219	3289		5000
1999	1380	1049	2174	1380	861	2172	1009	2110	3119		5000
2000	1072	989	2067	1069	817	2067	897	1945	2842		5000
2001	1400	879	1906	1400	715	1904	901	1898	2799		5000
2002	1316	883	1860	1316	713	1860	1134	2098	3232		5000
2003	1404	1111	2056	1404	926	2053	1356	2305	3661		5000
2004	1601	1328	2259	1601	1161	2259	1640	2564	5022		5000
2005	1754	1607	2513	1754	1438	2505	1933	2831	4764		5000
2006	1667	1895	2775	1667	1644	2732	2043	2967	5010		5000
2007	2013	2002	2908	2008	1661	2789	2156	3116	5272		5000
2008	2057	2113	3054	2024	1715	2834	2232	3175	5406		5000
2009	1637	2187	3111	1611	1706	2823	2018	2962	4980		5000
2010	1438	1978	2903	1411	1515	2572	1775	2659	4433		5000
2011	1389	1739	2605	1369	1288	2239	1259	2147	3406		5000
2012	820	1234	2104	793	741	1795	938	1867	2806		5000
2013	952	919	1830	946	655	1786					5000
2014											
2015											
2016											
2017											
2018											
2019											
2020											
2021											
2022											
2023											
2024											
2025											

## Survival and Initial Population Estimates

Year	Annual Juvenile Survival Rates		Annual Adult Survival Rates		
	Model Est	Field Est	Model Est	Field Est	SE
1993	0.90		0.79		
1994	0.90		0.79		
1995	0.90		0.79		
1996	0.53		0.79		
1997	0.50		0.79		
1998	0.50		0.79		
1999	0.50		0.79		
2000	0.50		0.79		
2001	0.50		0.79		
2002	0.88		0.79		
2003	0.90		0.79		
2004	0.90		0.79		
2005	0.90		0.79		
2006	0.90		0.79		
2007	0.86		0.79		
2008	0.90		0.79		
2009	0.90		0.79		
2010	0.90		0.79		
2011	0.50		0.79		
2012	0.50		0.79		
2013	0.50		0.79		
2014					
2015					
2016					
2017					
2018					
2019					
2020					
2021					
2022					
2023					
2024					
2025					

Parameters:

Adult Survival =

Initial Total Male Pop/10,000 =

Initial Female Pop/10,000 =

0.793

0.132

0.281

MODEL ASSUMPTIONS

Sex Ratio (% Males) =

Wounding Loss (total males) =

Wounding Loss (females) =

Wounding Loss (juveniles) =

Over-summer adult survival

50%

10%

10%

10%

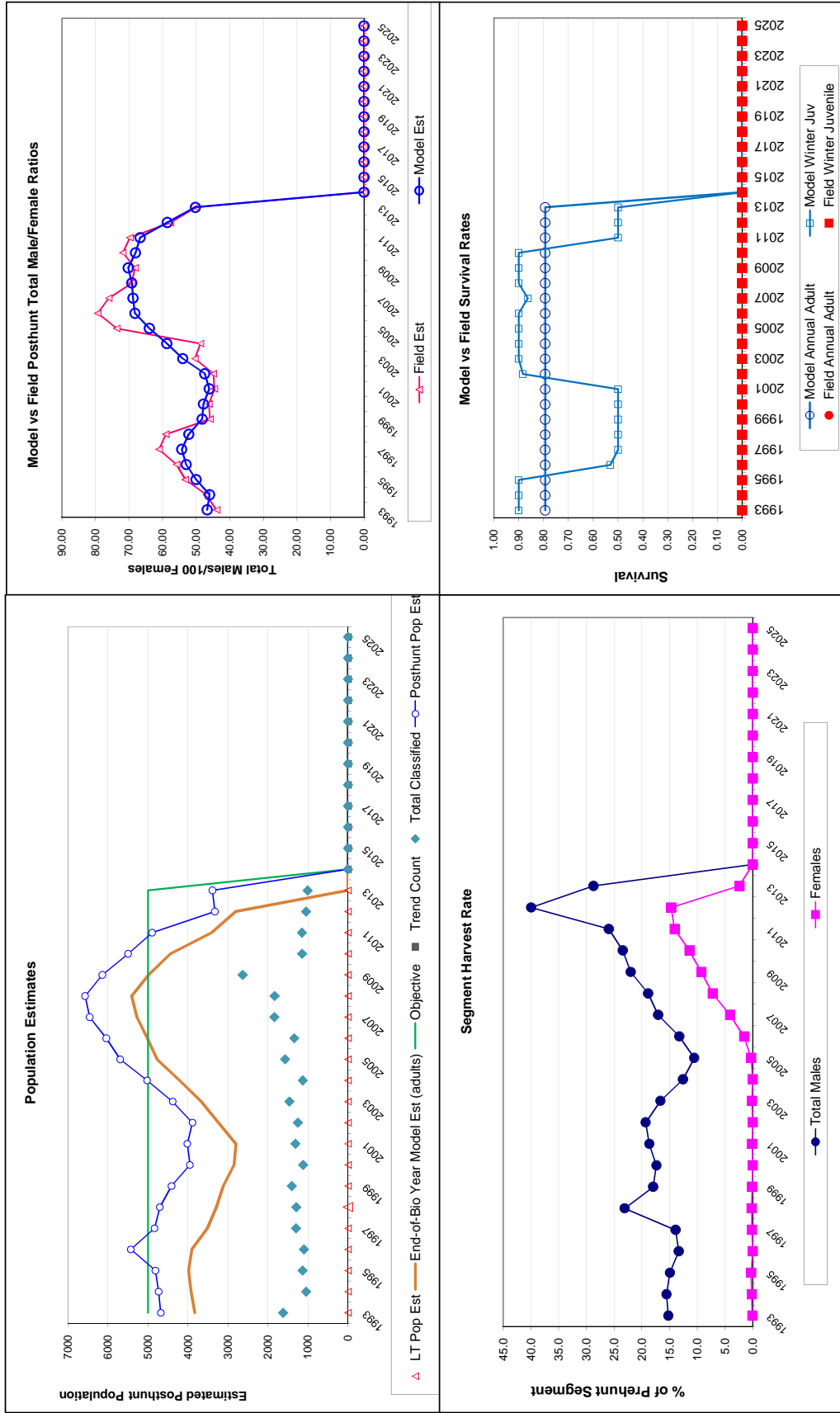
98%

Parameters:	Optim cells
Adult Survival =	0.793
Initial Total Male Pop/10,000 =	0.132
Initial Female Pop/10,000 =	0.281

MODEL ASSUMPTIONS	
Sex Ratio (% Males) =	50%
Wounding Loss (total males) =	10%
Wounding Loss (females) =	10%
Wounding Loss (juveniles) =	10%
Over-summer adult survival	98%

Year	Classification Counts					Harvest				
	Juvenile/Female Ratio		Total Male/Female Ratio			Total Harvest		Segment Harvest Rate (% of		Females
	Derived Est	Field Est	Field SE	Derived Est	Field Est	Field SE	Juv	Males	Females	
1993		26.79	1.89	46.75	43.91	2.58	182	2	0	184
1994		45.67	3.50	46.02	46.96	3.57	167	4	0	171
1995		45.71	3.42	50.06	53.24	3.78	174	7	0	181
1996		67.00	4.76	53.02	55.87	4.20	164	0	0	164
1997		48.63	3.42	54.34	61.07	3.99	170	3	0	173
1998		68.01	4.48	52.23	59.05	4.06	248	4	0	252
1999		63.49	3.93	48.24	45.90	3.16	171	2	0	173
2000		51.85	3.73	47.83	46.21	3.45	156	0	3	159
2001		73.47	4.60	46.12	44.61	3.27	149	2	0	151
2002		70.74	4.56	47.50	44.92	3.35	155	0	0	155
2003		68.31	4.15	54.04	50.37	3.36	168	3	0	171
2004		70.87	4.85	58.80	48.74	3.75	152	0	0	152
2005		69.81	4.28	63.96	73.68	4.45	154	7	0	161
2006		60.07	4.14	68.28	79.32	5.04	228	39	0	267
2007		69.24	3.95	68.85	76.03	4.22	310	108	5	423
2008		67.35	3.81	69.20	69.16	3.89	362	200	30	592
2009		52.60	2.59	70.29	68.20	3.10	437	262	23	722
2010		49.52	3.78	68.12	71.87	4.88	421	301	24	746
2011		53.29	3.98	66.75	69.77	4.79	410	333	18	761
2012		38.95	3.18	58.63	57.68	4.13			281	753
2013		52.00	3.98	50.24	50.00	3.87			40	285
2014										
2015										
2016										
2017										
2018										
2019										
2020										
2021										
2022										
2023										
2024										
2025										

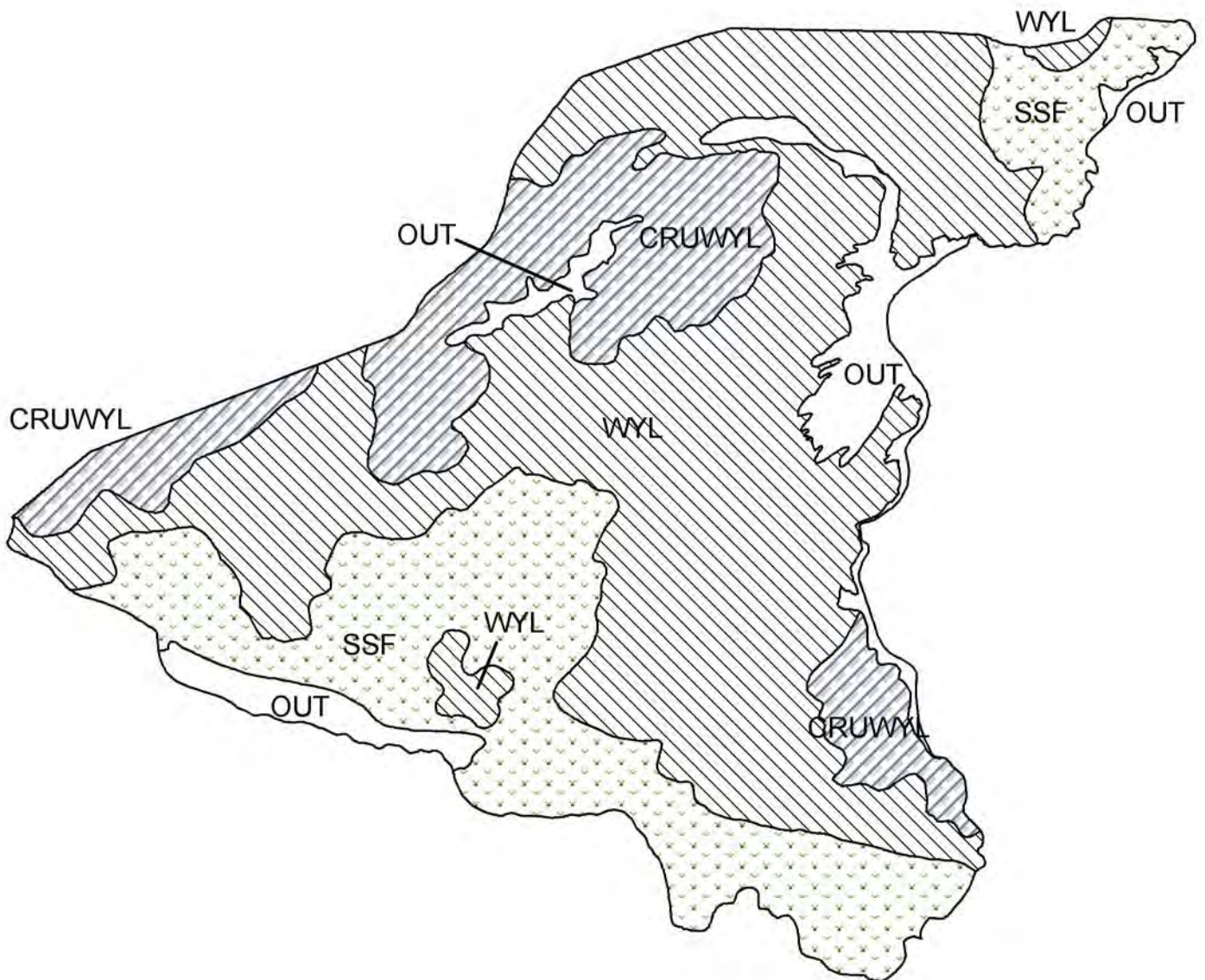
FIGURES



Comments:



PH636 - North Ferris  
HA 63  
Revised - 8/95







## 2012 - JCR Evaluation Form

SPECIES: Pronghorn

PERIOD: 6/1/2012 - 5/31/2013

HERD: PR637 - SOUTH FERRIS

HUNT AREAS: 62

PREPARED BY: GREG HIATT

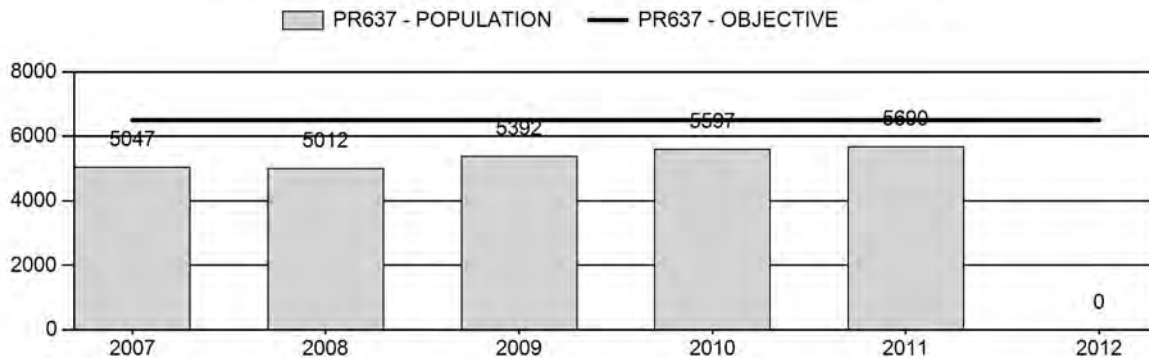
	<u>2007 - 2011 Average</u>	<u>2012</u>	<u>2013 Proposed</u>
Population:	5,348	N/A	N/A
Harvest:	244	225	200
Hunters:	283	252	220
Hunter Success:	86%	89%	91 %
Active Licenses:	287	271	220
Active License Percent:	85%	83%	91 %
Recreation Days:	782	882	700
Days Per Animal:	3.2	3.9	3.5
Males per 100 Females	58	60	
Juveniles per 100 Females	43	35	

Population Objective:	6,500
Management Strategy:	Recreational
Percent population is above (+) or below (-) objective:	N/A%
Number of years population has been + or - objective in recent trend:	13
Model Date:	None

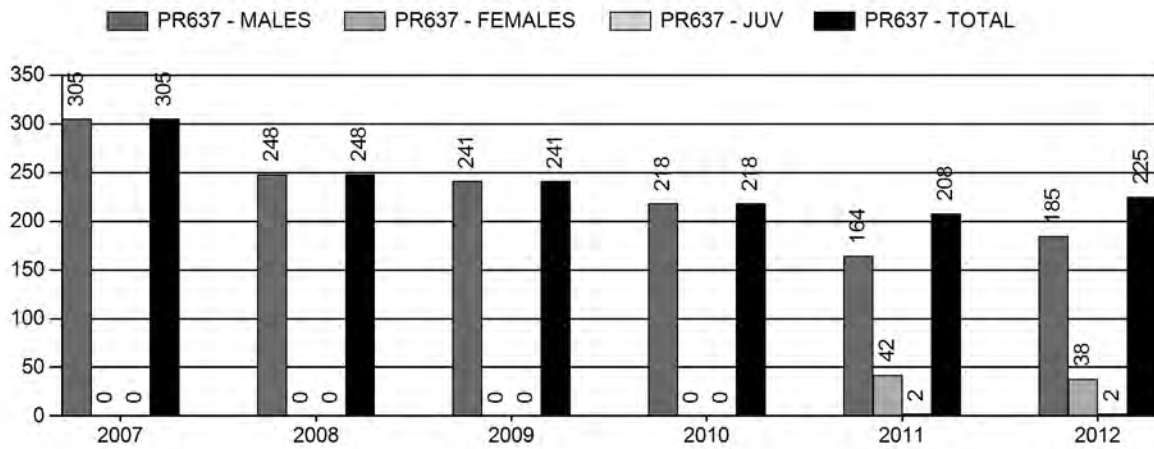
**Proposed harvest rates (percent of pre-season estimate for each sex/age group):**

	<u>JCR Year</u>	<u>Proposed</u>
Females $\geq$ 1 year old:	1.1%	n/a%
Males $\geq$ 1 year old:	11.3%	n/a%
Juveniles (< 1 year old):	0.1%	n/a%
Total:	3.86%	n/a%
Proposed change in post-season population:	0.3%	n/a%

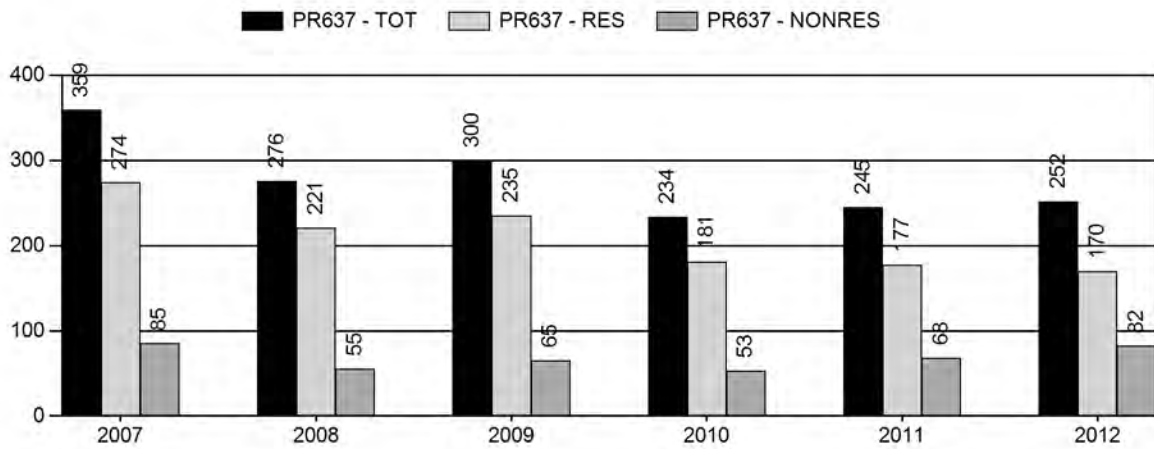
## Population Size - Postseason



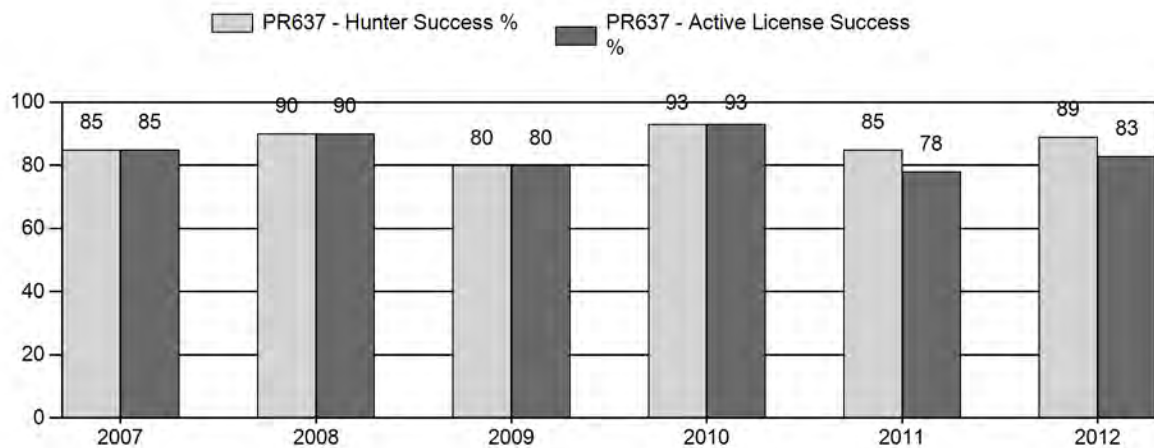
## Harvest



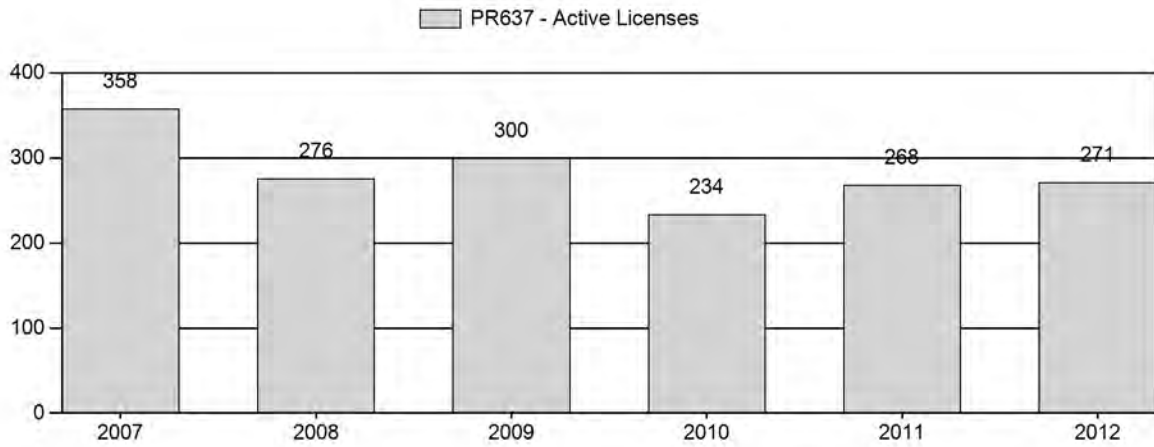
## Number of Hunters



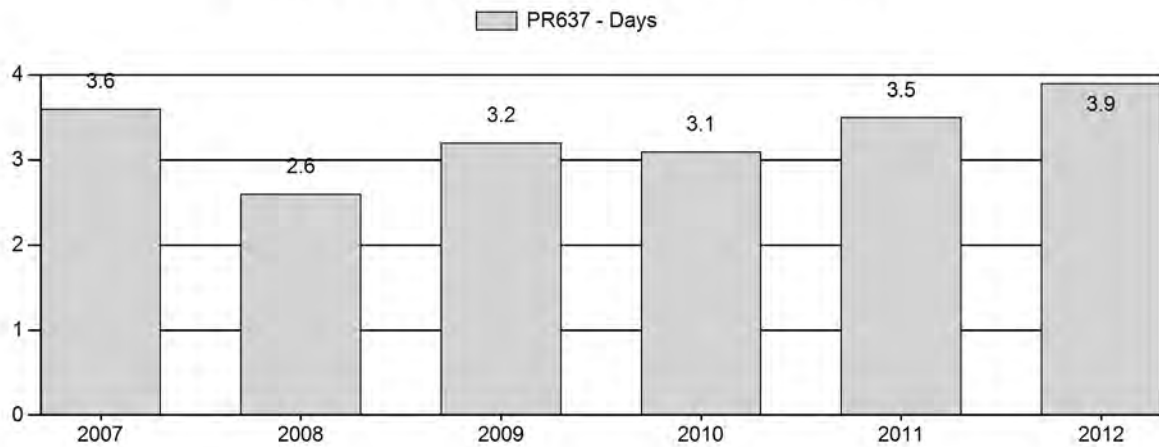
## Harvest Success



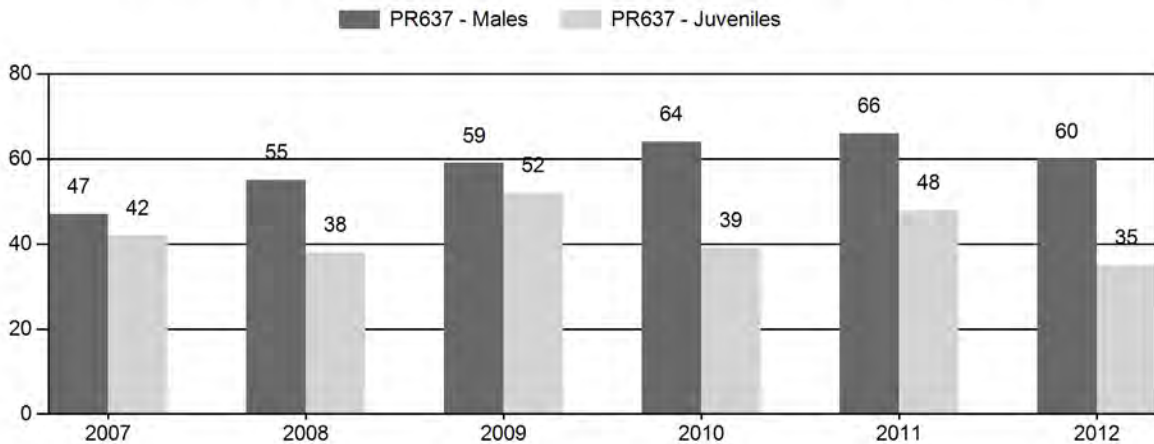
## Active Licenses



## Days Per Animal Harvested



## Preseason Animals per 100 Females



## 2007 - 2012 Preseason Classification Summary

for Pronghorn Herd PR637 - SOUTH FERRIS

Year	Pre Pop	MALES				FEMALES		JUVENILES		Tot Cls	Cls Obj	Males to 100 Females				Young to		
		Ylg	Adult	Total	%	Total	%	Total	%			Ylng	Adult	Total	Conf Int	100 Fem	Conf Int	100 Adult
2007	5,383	97	527	624	25%	1,327	53%	551	22%	2,502	1,104	7	40	47	± 3	42	± 2	28
2008	5,285	171	440	611	28%	1,116	52%	419	20%	2,146	1,157	15	39	55	± 3	38	± 3	24
2009	5,657	127	495	622	28%	1,049	47%	543	25%	2,214	1,553	12	47	59	± 0	52	± 0	32
2010	5,836	209	578	787	31%	1,234	49%	481	19%	2,502	1,652	17	47	64	± 3	39	± 2	24
2011	5,919	144	477	621	31%	943	47%	451	22%	2,015	0	15	51	66	± 5	48	± 4	29
2012	0	47	452	499	31%	827	51%	293	18%	1,619	0	6	55	60	± 0	35	± 0	22

**2013 HUNTING SEASONS  
SOUTH FERRIS PRONGHORN HERD (PR637)**

Hunt Area	Type	Dates of Seasons		Quota	Limitations
		Opens	Closes		
62	1	Sep. 14	Oct. 31	75	Limited quota; any antelope
	2	Sep. 14	Oct. 31	100	Limited quota; any antelope valid in that portion of Area 62 east of the Continental Divide and north of Wise Dugout Draw
	6	Sep. 14	Oct. 31	50	Limited quota; doe or fawn valid in that portion of Area 62 east of the Continental Divide and north of Wise Dugout Draw
	7	Aug. 15	Oct. 31	25	Limited quota; doe or fawn valid on private lands in the Muddy Creek drainage
Archery					
62		Aug. 15	Sep. 13		Refer to Section 3 of this Chapter

Hunt Area	Type	Quota change from 2012
62	1	-75
	2	0
	6	0
	7	+25
<b>Total</b>	<b>1 &amp; 2</b>	<b>-75</b>
	<b>6 &amp; 7</b>	<b>+25</b>

**Management Evaluation**

**Current Management Objective: 6,500**

**Management Strategy: Recreational**

**2012 Postseason Population Estimate: N/A**

**2013 Proposed Postseason Population Estimate: N/A**

**Herd Unit Issues**

The South Ferris pronghorn herd is managed toward a post-hunt population of 6,500, an objective last reviewed in 1994. Prior to 2012, population size was estimated using a Pop-II model with reasonable confidence. Attempts to develop a spreadsheet model in 2012 have been unsuccessful, presumably because buck:doe ratios vary widely between the lightly hunted eastern half and publicly accessible lands in the western half of the herd unit. Hunter access to much of the eastern half of the herd has been severely limited by private landowners since the

mid-1990s and has resulted in buck:doe ratios and pronghorn densities that are greatly skewed between the western and eastern portions.

This herd was at objective size at the end of the 1990s but declined in 2001 and has remained roughly 15-20 percent below objective ever since, largely a result of poor fawn production. Fawn crops only ranged from 28 to 55:100 over the past 12 years, averaging 40:100. Poor production and recruitment has prevented the herd from recovering towards objective.

## **Weather**

Drought conditions were extreme in 2012, with minimal snowfall during the 2011-12 winter and almost no precipitation throughout the spring and summer. Drought was classified as moderate in April, severe in May and then extreme for all subsequent months through February 2013. As a consequence, fawn production was again exceptionally low at 35:100. Body condition of most pronghorn harvested from this area in 2012 was poor, especially for lactating does. Given the poor condition of animals at the end of fall, mortality is expected to be above average during the 2012-13 winter, despite moderate winter conditions. Three late winter blizzards in April 2013 likely increased winter losses.

## **Habitat**

While no herbaceous habitat transects are established within this herd unit, herbaceous forage production is expected to have been minimal due to record drought. Only one shrub transect has been established near this herd unit, on the Morgan Creek WHMA. This transect monitored bitterbrush growth and utilization in the Seminole Mountains but was burned in the 2012 fires. New owners of the Pathfinder Ranch, which encompasses the north-central portion of this herd, have expressed interest in looking for opportunities for improving habitat conditions for wildlife, possibly as mitigation for wind power projects in other parts of the state. Habitat issues that would benefit pronghorn include treatment of winter ranges, adjustments of grazing use, and modification of sheep-tight fences.

## **Field Data**

Classification sample size declined again for the third year, to the smallest sample since 1979. Part of the decline the past two years was due to loss of data that used to be collected by aerial flights over a small portion of the herd, but most ground classification routes also showed drops in the number of pronghorn seen. Fawn production declined to its lowest level in 6 years, a direct result of the exceptionally dry spring and summer.

Buck:doe ratios exceeded the 60:100 maximum criterion for recreational management in three of the past five years, but always due to high ratios in the half of the herd unavailable to most hunters. Buck:doe ratios in the western portion only averaged 43:100 over the past five years, a poor supply of bucks for an area with large acreages of public land, which generated complaints of poor buck numbers and quality by hunters. Buck:doe ratios in the eastern portion, however, averaged 78:100. The Type 2 licenses introduced in 2012 are intended to address the disparity between buck supplies between the two portions of the area by forcing much of the hunting pressure into the eastern portion.

## **Harvest Data**

The difference in supply of bucks between the two halves of the herd unit is also apparent when looking at hunter success for the Type 2 licenses, first introduced in 2012. Hunters with these tags, restricted to the eastern third of the area with limited public access, enjoyed 94 percent success, compared to only 73 percent for hunters with Type 1 tags that were valid for the entire area. Roughly half of these Type 2 hunters paid for access to private lands in that part of the checkerboard, the other half hunting the limited public lands. Type 2 hunters also spent 20 percent less time, on average, in the field in order to harvest their animal than hunters with Type 1 licenses. The 73 percent success for hunters with Type 1 licenses was the lowest success ever recorded for this herd and the average of 4.7 days hunted for each animal harvested was the highest ever recorded, indicating exceptionally low pronghorn numbers in the western half of the herd.

## **Population**

Efforts to develop a reasonable spreadsheet model for this herd have failed, presumably due to the highly skewed buck:doe ratios between the eastern and western portions of the herd unit. In 2012, the buck:doe ratio in the publicly available portion of the herd was only 36:100, whereas the portion with limited access had 89:100. Half the herd unit is essentially unhunted. As a result, when classification samples for the two halves are combined to determine herd ratios, changes in harvests do not necessarily result in predictable changes in buck:doe ratios, the key parameter used for running spreadsheet models.

It may be possible to develop a useful spreadsheet model of this herd by weighting buck:doe ratios between the two portions of the herd unit, rather than simply combining data as has been done in the past. A line transect survey scheduled for spring of 2013 should provide an independent estimate of herd size and also a means to evaluate any spreadsheet model using weighted ratios.

## **Management Summary**

With the population apparently well below objective, harvests need to be reduced to allow the herd to recover, particularly in the western half. The 2013 quota for Type 1 licenses, most of which are expected to be filled on public lands or Walk-In areas in the western portion of the area, is reduced by 50 percent. No reduction is recommended for the Type 2 licenses, nor the Type 6 quota which are also restricted to the eastern third where pronghorn densities are higher. High numbers of pronghorn on irrigated croplands in the northwestern corner of the herd have been a perpetual complaint, which was aggravated by drought conditions in 2012. Anticipating similar drought in 2013 and subsequent concentration of pronghorn on these irrigated fields, a Type 7 license was created to open earlier than usual and allow for harvest of does and fawns off those private lands. Most of these lands are enrolled in the Department's Walk-In program, so access to these private lands should not be a concern.

The expected harvest of roughly 135 bucks and 65 does and fawns from the proposed license quotas should allow some increase in herd size, particularly in the western half, while simultaneously reducing pronghorn numbers on irrigated fields along Muddy Creek and

providing some control on pronghorn numbers in the eastern third of the area. This assumes reduced survival through the 2012-13 winter due to drought-stressed animals and forage, and fawn production similar to the low level seen in 2012. If either winter survival or fawn production exceeds expectations in 2013, the increase would be improved, but this herd is unlikely to reach objective size for several years without significant improvement in fawn production and survival.

Opening date falls on the traditional day of the week and is compatible with the application booklet. The closing date is the same as in 2012 and extends to the closing of the local deer season. A standardized opening date is used for the archery season, which closes the day before the opening of the regular season.

A review of the management objectives for this herd is scheduled for late 2013, following the line transect survey planned for spring 2013.





PH637 - South Ferris  
HA 62  
Revised - 8/95

